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EDITORIAL COMMENT

ON Sunday last, April 1, it was ten years since the Royal Air Force came into being as an independent and separate service. During these ten years of its existence the R.A.F. has passed through some trying periods, but that the service has emerged triumphant none will deny who is at all conversant with the work which our air force has done and is doing. For the benefit of those of our readers whose interest in the air began since those days, it may be well to give here a very brief outline of the history of the British air arm from the early days.

Ten Years

The first British air force, the Royal Flying Corps, was formed in March, 1912, and for a time its two divisions were known as the R.F.C. (Military Wing) and R.F.C. (Naval Wing). Then, in June, 1914, the R.F.C. (Naval Wing) was established as a separate service, with title The Royal Naval Air Service. These two services grew side by side for several years, and the first years of the war 1914-18 were fought with the two services, the R.F.C. and the R.N.A.S. as entirely individual forces.

For the first few years of their existence, there was no single control of the two air arms, the R.F.C. being under the War Office and the R.N.A.S under the Admiralty. During the war, the problems of an adequate supply of machines became acute, and in January, 1917, the so-called Air Board was formed, with Lord Cowdray as its first chairman. Although Lord Cowdray was not given this title, he was in fact and in effect the first Air Minister in the world.

The Air Board formed in 1917 did a great deal towards a more uniform administration of the air services, but its powers did not go far enough to enable it to effect that complete reorganisation which only an actual reform, having as its basis a single air service, could give. FLIGHT was for years a staunch and the sole public advocate of this single air service, maintaining that the chiefs of the Army and Navy should obviously be supplied with such aircraft and personnel as they required for their own particular tactical purposes, but that there should be a single

separate air force whose function should be the larger and wider aims of war. As our slogan we adopted the phrase " One Air Service, one Uniform, one Badge," and we continued to preach this doctrine in and out of season, until at last, on April 1, 1918, we had the satisfaction of being able to record the establishment of the independent service for which we had been asking, under the title the Royal Air Force.

Space does not permit of going into detail concerning the history of the Royal Air Force during the first ten years of its existence, but it may be of interest to recall briefly that when the war ended in November of 1918, we had an air force numbering something like 200 squadrons and about 150,000 officers and men. Sir Hugh Trenchard, who then was, and still is, the service head of the R.A.F., was then faced with the incredibly difficult task of reducing this great air force to proportions more in keeping with peace conditions.

The R.A.F. was gradually reduced in numbers, first to 79,570, then to 29,730 in 1920-21, and since then the service has varied in numbers between 36,000 in 1925-26, and 32,500 in the present year. Throughout it has been the chief aim of Air Marshal Sir Hugh Trenchard to keep the Royal Air Force *efficient*. In that we think it will be generally admitted he has succeeded, and the British Royal Air Force is, today, a service which need fear no comparison with any air force in the world.

While its numbers have decreased, the duties of the Royal Air Force have multiplied, and thus by its very efficiency, the R.A.F. has saved the British taxpayer vast sums of money by taking over from the Army the policing of Iraq, a difficult task which the R.A.F. has carried out with commendable effect. " Control without occupation," is a phrase for which we are indebted to Sir Samuel Hoare, and it very aptly describes the advantage of entrusting the maintenance of law and order to the Royal Air Force.

That the R.A.F. has not attained its present position without opposition will be well known to our readers. For a number of years the Navy carried out periodically a strenuous propaganda having for its object the establishment, or rather re-establishment, of a Naval air service. That the Navy failed in its attempts has been very largely due to Sir Hugh Trenchard, and we believe that the Royal Air Force has now become so firmly established that no agitation can ever result in any serious harm being done to it. Its first ten years have been eventful ones, and full of difficulties. But its motto is still *Per Ardua ad Astra*. May we always be as proud of our R.A.F. as we are on its tenth birthday.

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500 Km./h.

A short time ago we referred to the question as to which was the more impressive figure: 300 m.p.h. or 500 km./h. The regrettable accident to Lieut. Kinkead prevented us from discovering the actual speed of which the Supermarine-Napier S.5 is capable, and now the Italian pilot, Maj. de Bernardi, has settled the speed problem by being the first to exceed both the 300 m.p.h. and the 500 km./h., his feat will make it all the more difficult for Great Britain to gain the world's speed record, but that in no way lessens our admiration for the Italian effort. De Bernardi's average speed over the 3 km. course of 512·776 km./h. (318·5 m.p.h.) was a magnificent triumph, and he, as well as the Macchi and Fiat companies which produced the machine and engine, deserve our sincerest and unstinted congratulations.

["FLIGHT" *Photograph*

OUT AGAIN: The de Havilland " Moth " fitted with Handley Page automatic slots, was in dock but a very few days after its recent argument with the ground. It is here seen flying again, piloted by Capt. Hubert Broad.

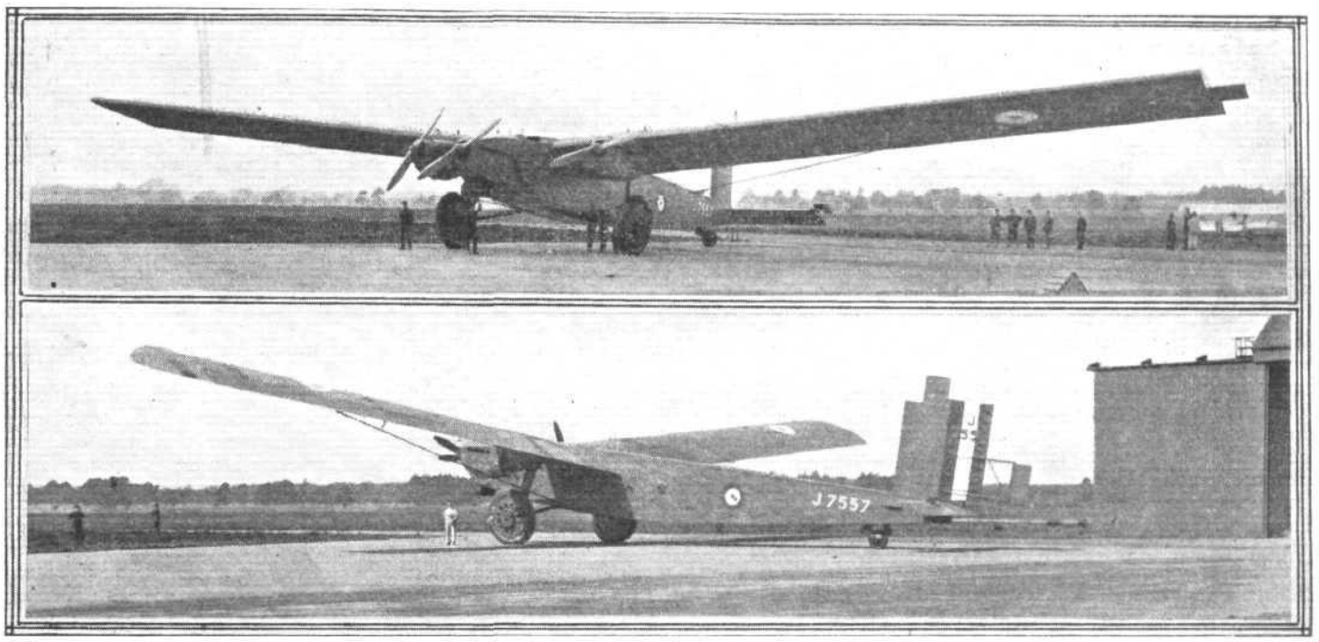
FLIGHT

THE BEARDMORE "INFLEXIBLE"

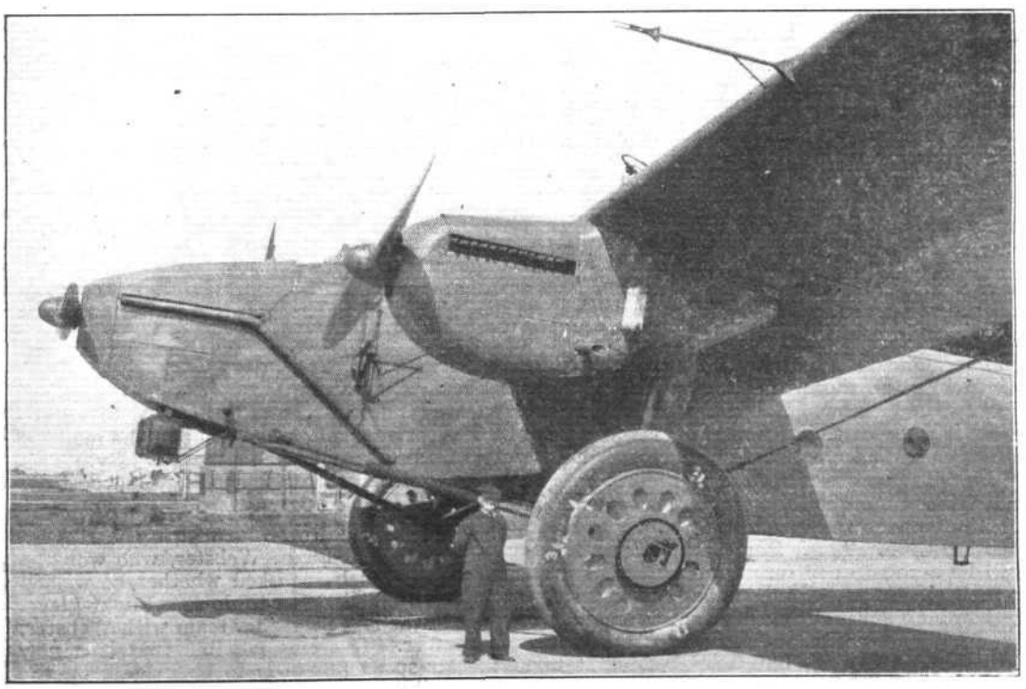
Three Rolls-Royce "Condor" Engines

It is an undoubted fact that size as such exerts a peculiar fascination on the majority of people. We experience it in nature, in buildings, in ships, and in aircraft. The magnitude of mountain and ocean, the towering of the skyscraper, the colossal bulk of the ocean liner, all have an appeal which can be traced back to size. Even in aircraft we do not escape it. We may have our doubts as to the efficiency of a very large aeroplane, but in spite of ourselves we are impressed. Probably without putting the thought into definite form we are impressed by the feat of getting so many tons of inert matter into the air. And in the earlier days of aviation it was quite a common view that if one only built a machine large enough, it could fly across the Atlantic. (We are writing now, of course, of the days when the possibility of doing so was rather remote.) How that view came to gain ground is not very easy to imagine, except that the appeal of size was in all probability at work. A fundamental law, which we cannot escape, decrees that if we take any small aeroplane and build an enlarged version of it, geometrically similar in every way, the area of the large machine will vary as the square of a linear dimension, while the weight will vary as the cube. Thus fundamentally the large aeroplane is fighting against a natural limitation.

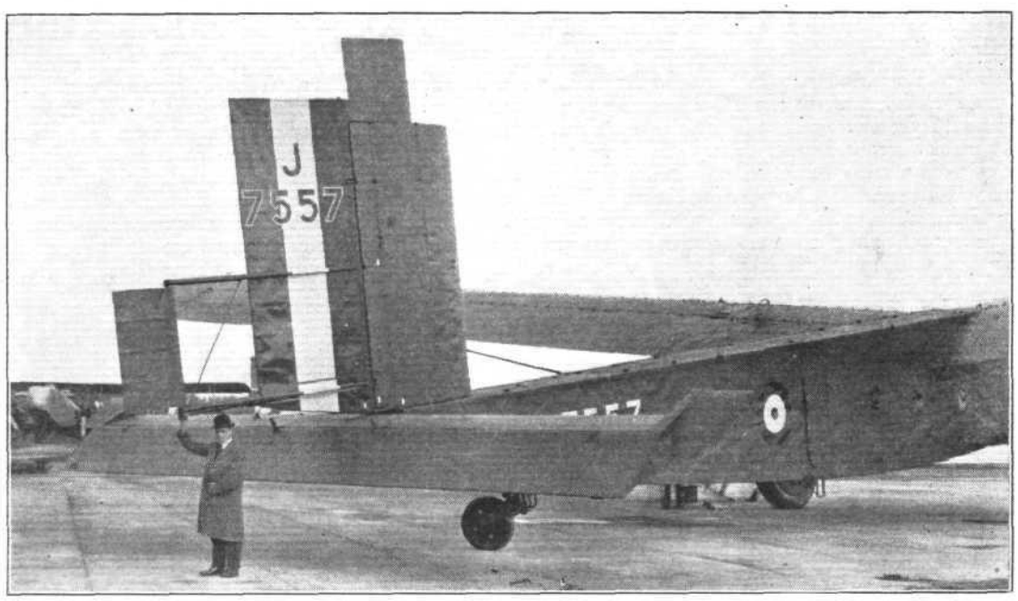
No aircraft designer denies this law, but there are those who maintain that, as we do not make our large machine geometrically similar to the smaller one, the law does not



THE BEARDMORE "INFLEXIBLE": With a wing span of 158 ft., and a total loaded weight of about 15 tons, this machine is an interesting experiment in beating the scale law. Three-quarter front and three-quarter rear views.



The Beardmore "Inflexible": A view of the three Rolls-Royce "Condor" engines. The man standing in front gives a good idea of the size of the machine. Note particularly the large Dunlop wheels.



The Beardmore "Inflexible": View of the tail unit. Note the balances and Flettner servo-rudder.

apply. Thus it is claimed that by making refinements in the details of the construction, refinements which become possible in the large machine but were out of the question in the smaller one, sizes far beyond those indicated by the plain $W^{3/2}$ law become practicable. In the Beardmore "Inflexible," a large monoplane of Rohrbach design, constructed at the Dalmuir works of Wm. Beardmore and Co., we have an interesting attempt at "beating the $W^{3/2}$ law."

The Beardmore "Inflexible" is, as the accompanying illustrations show, a monoplane of very large span (about 158 ft.), and equipped with three Rolls-Royce "Condor" engines. The machine is of all-metal construction, including the skin of wings and fuselage, which is of Duralumin. Steel is used for a few highly-stressed fittings, but for the rest the entire machine is built of Duralumin.

The general principles of construction are those adopted by Dr. Rohrbach for a number of years, and include the use of a form of metal "box" to form the wing spars, the sheet-metal covering being laminated and the number of laminations depending upon the stresses at any particular point.

At present no information concerning the performance of the machine is available. The "Inflexible" is known to have been tested in flight at Martlesham, and is reported to have flown very well and to be very controllable. Features of the design visible in the photographs are the large span, the balanced control surfaces, and the Flettner type servo-rudder. The large Dunlop wheels must have presented a pretty problem in design, having to carry a load of something like 7½ tons each.

We had occasion to refer recently to the alleged characteristics of a large machine designed by Herr Dornier, and expressed the view that, with the weight and dimensions given, the machine would be unable to get off. In the case of the Beardmore "Inflexible" it can easily be shown that the induced drag of the wing has been reduced to quite a low figure. The span is approximately 158 ft., and the loaded weight is given as in the neighbourhood of 15 tons. Assuming these figures to be approximately correct, the value of Span ^{2}/W is 0·74, which is very much higher than is usually found in large aeroplanes. In fact, a value of 0·3 is not uncommon. As the power loading is round about 16 lbs./h.p., there is no reason whatever why the "Inflexible" should not have quite a good performance. Its great size has, not unnaturally, given the wags an opportunity to exercise their wit, and the machine has been variously nicknamed the "Incredible," the "Impossible" and the "Brittle." The last name presumably comes from an assumption that anything which is inflexible must be brittle.

It is to be hoped that detail information may soon become available as the machine is a most interesting experiment. Apart from performance figures, it will be particularly interesting to learn what percentage of tare weight to gross weight has been attained. We gather that the useful load is a good deal greater than most people would imagine.

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Aircraft Establishment Retirement

MR. WILLIAM SYDNEY SMITH, B.Sc., C.B., O.B.E., the Chief Superintendent of the Royal Aircraft Establishment, Farnborough, which is the main research and experimental establishment of the Air Ministry, formally retired from that post on Sunday, and is succeeded by Mr. A. H. Hall, who before and during the war was largely connected with the supervision of Government ordnance factories.

R.A F. Middle East Dinner

THE 7th Annual Middle East Dinner will be held in London on June 7, when it is hoped that a record attendance will be attained. Time and place will be announced at a later date. It is hoped that special efforts will be made by all interested to attend this dinner, and that officers will bring the notification to the attention of all those who have left the Service whose addresses they know. All communications should be addressed to:—Brigadier-General W. B. Caddell, Vickers House, Broadway, Westminster, S.W.1.

An Air Pageant for Bristol

ON May 5 the Bristol and Wessex Aeroplane Club is holding an Aerial Pageant at Filton, under the auspices of the Air Ministry and the Royal Aero Club. Apart from Air Races, joy-riding, etc., there will be aerobatics in formation by R.A.F. pilots, selected for their skill and daring, while the Air Ministry will be sending bombing and fighting planes to give demonstrations of the actual conditions of aerial warfare. The Pageant itself will start at 2 p.m., but there will be flying from 11 a.m. onwards, various heats of races and competitions, etc., being run off in the morning. Prices of admission will range from 1*s.* to 15*s.*, while a limited number of private boxes to hold eight persons (price £8 8*s.*) can be booked in advance on application to the Secretary, Bristol and Wessex Aeroplane Club, Filton Aerodrome, Glos.

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A Correction of a Correction

ON page 25 of THE AIRCRAFT ENGINEER (technical supplement to FLIGHT) last week, we published a paragraph entitled "An Omission," relating to a radius dimension which had been left out of Fig. 1 of Mr. Pollard's illustrations. Owing to a printer's error, the radius dimension was given as 0·05 in. This should have been 0·5 in. Will readers please make the necessary correction?

The Air Force in Iraq

ON March 29 there arrived at Basra a new draft of six Air Force officers and 233 men. They were to relieve those whose overseas service had expired, but at the moment all home leave in Iraq has been cancelled temporarily. This new draft will go up country to desert bases and outposts.

High-speed Flight

A NEW high-speed flight is to be formed in the R.A.F., and it is reported that Flight-Lieut. Webster, who won the 1927 Schneider Trophy, has been asked whether he wished to join it. It is said that he is keen to do so. Flight-Lieut. Worsley, a member of the last Schneider team with Webster, may also be a member. It seems possible that if a new attempt upon the air speed record is to be made soon the choice of a pilot will inevitably rest between these two officers.

FLIGHT

THE ROYAL AIR FORCE FLYING-BOAT CRUISE

Log of the Far East Flight from England to Karachi

WE give below the log of the R.A.F. Far East Flight, together with the Report of the Officer Commanding, which was issued recently by the Air Ministry. The flight, which is from England to Australia (a total distance of nearly 28,000 miles), is being carried out by four Supermarine "Southampton" metal flying-boats, each with two Napier "Lions," under the command of Group Capt. H. M. Cave-Browne-Cave, R.A.F. The Flight is now at Singapore.

In his report, the Officer Commanding states :—

The aircraft and engines of the flight have been very satisfactory. At every stopping place the flight has received the greatest assistance and hospitality : all the arrangements made by the local authorities for the safety and refuelling of the flight have worked perfectly. The health of the flight has been good.

The weather conditions on the whole have been good, the winds have generally been favourable, and the temperature inside the hulls has seldom exceeded 80° F.

During the passage of the flight through the Persian Gulf, the Senior Naval Officer of that station, having been asked by R.A.F., Iraq, to report where his ships would be, thought it necessary to send H.M.S. *Enterprise* to Bushire and Henjam to meet and assist the flight. After he had seen the flying-boats land, secure to their buoys and refuel without any difficulty at Henjam, and after he had been shown over the flying-boats, he agreed that it was unnecessary to make any special dispositions for the remainder of the flight to Karachi.

During the stay at Karachi it was found that the water in Karachi Harbour fouls the bottoms of the ships, and flying-boats, very quickly, and although an inspection of the hull bottoms on the last flight to Karachi showed the bottoms to be clean, it was found that after a fortnight in the harbour the bottoms were covered with barnacles and tufts of wood. Each boat has been pulled up on its chassis on the sandy beach on the Manora side of the harbour for one day and the bottoms have been thoroughly cleaned and painted. On launching, each boat has been given a short test flight, and the opportunity has been taken to give flights to G.O.C., Sind Brigade, and other officers.

The log of the flight is as follows :—

Friday, October 14. Felfxstowe to Plymouth. 276 miles. (4 hrs. 5 mins. ; 68 knots.)—Flight left Felixstowe in formation at 09.00 and landed at Cattewater at 13.05 after a rather unpleasant flight in rain and thick mist. The boats were moored to the outer buoys off the Air Station and refuelled to 400 gallons, with the assistance of Care and Maintenance Party ; the fuel, in 5-gallon drums, being towed out to the flying-boats in dinghies.

Saturday, October 15. Plymouth.—Aircraft inspected by Naval Commander in Chief, Plymouth, and by Air Officer Commanding No. 10 Group, the latter arriving by air from Calshot. Length of rubber joint to radiator bottom water connection increased to 1 ft. on all aircraft to relieve vibration stresses at this point. A new radiator was fitted to S. 1151.

Sunday, October 16. Plymouth.—Extensions to foot rail supplied by Supermarines were fitted. Southampton S. 1125 flew over from Calshot with engine starter parts as spares for the flight.

Monday, October 17. Plymouth to Hourtin (Bordeaux). 380 miles. (5 hrs. 5 mins. ; 75 knots.)—The flight took off in formation at 09.00 in the presence of the Naval Commander in Chief, and were escorted out of the Sound by Air Officer Commanding No. 10 Group, in Southampton N. 9900. Until Ushant was reached, the clouds were low, with rain squalls and a following wind, up to 25 knots at 1,000 ft. After Ushant, the weather cleared and the wind dropped. The fight landed in formation at Hourtin at 14.05, and secured to buoys near the French Seaplane Station at the north end of the lake.

The refuelling was carried out from four-gallon tins towed out to the flying boats in dinghies. The flight was hospitably received by the French, who transported the fuel to the flying-boats and entertained the officers of the flight in their Mess. The officers were accommodated at the French Air Station, and the airmen slept in the flying-boats.

Tuesday, October 18. Hourtin.—The Air Attache, Paris, flew down to meet the flight and remained until the following day, when he flew on to Berre to render any assistance that might be required there. The Officer Commanding the French Air Station and several of his officers visited the flying-boats. The wind was light and variable with heavy rain during the afternoon.

Wednesday, October 19. Hourtin to Berre (Marseilles). 310 miles. (4 hrs. 25 mins. ; 70 knots.)—The flight took off in formation at 08.20, and arrived at Berre at 12.45.

Except for a patch of fog in the vicinity of Bordeaux, which the flight flew above for about ¾ hr., the trip was uneventful. The wind was N.W. throughout the flight, varying between 5 to 20 knots on the surface. The aircraft were moored to the Air Station flying-boat moorings, which were quite satisfactory.

The flight was hospitably received by the French Air Station, and the Officer Commanding the French Naval Aviation stations in the district flew over specially to welcome them.

The officers lunched at the French air station, after which all the aircraft were refuelled to 450 gallons by the same method as at Hourtin. Several French officers, including the commanding officer of the French seaplane station and Commandant of the French military aviation base at Istres, were shown over the aircraft during the afternoon.

Half the officers and airmen slept ashore at the air station and half on board the aircraft.

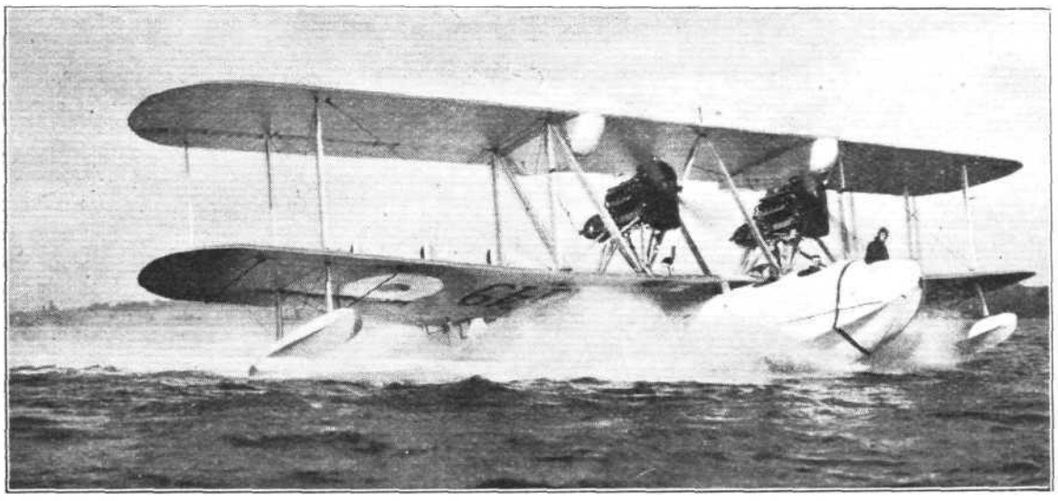
Thursday, October 20. At Berre.—Flight remained at Berre. Weather fine with light northerly breezes. Several flying officers from Istres and three technical officers from Paris arrived at Berre to see the Southamptons.

Four officers and four airmen slept ashore ; remainder on board the aircraft.

Friday, October 21. Berre—Naples. 440 Miles. (7 hrs. ; 66 knots.)—The flight took off in formation at 08.00 for Naples. The wind was light variable at first, later N.E. 10 knots, and finally, southerly 5 knots ; visibility fair. Two French twin-engine flying-boats escorted the flight as far as Toulon.

Half-an-hour before reaching Cap Corse, the most northerly point of Corsica, S. 1150 reported a bad oil leak from the starboard engine. She carried on, however, until able to land in a small bay on the east side of Cap Corse. After twenty minutes on the water she took off again and rejoined the formation, which had remained in the air. The leak arose from a cracked nipple where the oil pressure gauge pipe is joined to the engine ; this was blanked off temporarily.

Course was then set for Naples, which was reached without further incident at 15.00 hrs. The flight landed in formation at Nisida Island, and moored to special moorings close to the Italian seaplane station. The flight was welcomed by the British Consul-General, the Air Attache, and the Officer Commanding the Italian seaplane station. Four officers and four airmen lived on board the aircraft, the remaining officers in Naples ; the four other airmen at the Italian seaplane station.



The Great Flying-Boat Cruise: One of the four R.A.F. Supermarine "Southampton" metal flying-boats—each with two Napier "Lions"—which, under the command of Group Capt. H. M. Cave-Browne-Cave, are flying to Australia.

Saturday, October 22. At Naples.—The officer commanding flight, with the Air Attache, called on the General of the District, the Admirals of the Area, and port and various local officials. The day was spent on general overhaul work and cleaning down.

Sunday, October 23. At Naples.—During the forenoon the wind increased to 25-30 m.p.h., from a southerly direction, with heavy rain and low cloud.

The aircraft being under the lee of Nisida Island, were quite safe at their moorings, although, owing to the wind eddies from the rocky island they swayed about somewhat, and a good deal of snatching at mooring wire took place.

Monday, October 24. At Naples.—Wind shifted to a westerly direction and decreased considerably although it still remained gusty. The afternoon was spent showing various Italian officers over the aircraft.

All the personnel slept on board the flying-boats except two airmen, who slept at the Italian air station. Throughout the stay at Naples the flight was given every assistance by the Italian air station.

Tuesday, October 25. Naples—Brindisi. 230 Miles. (3 hrs. 4 mins.; 63 knots.)—At 07.50 the flight took off independently in Nisida Harbour.

On account of the swell outside the harbour, and in order to avoid the cliffs and high telegraph wires, it was necessary to take off down wind. The wind at the time was east 5 m.p.h. The flight flew over Naples in formation before setting course down the coast.

Luckily the clouds were high, so that the flight were able to cross over the mountains on the "Heel and Toe" of Italy at 5,000 ft., and proceed direct to Brindisi, thus avoiding the necessity of following the coast right round, an additional distance of about 220 miles. The land crossings amounted to about 60 miles altogether.

The mooring site, close to the air station and opposite the civil seaplane station, was quite satisfactory, although rather close to the shipping channel. The buoys were not specially laid, the flight using ordinary ship moorings.

The flight was welcomed by the officers of the Italian seaplane base and the Air Attache, Rome, who had preceded the flight to ensure that all was ready for them.

The fuel was pumped direct from 200-litre barrels into the aircraft tanks by means of the aircraft refuelling pump and hose. Refuelling was completed by dark and the officers, except the duty officer, then went ashore to Brindisi. Four of the airmen slept at the Italian air station and four in the flying-boats.

Wednesday, October 26. At Brindisi.—The Officer Commanding Flight, with the Air Attaché, Rome, called on the British Vice-Consul, the Prefect, and the S.N.O.

The afternoon was spent showing Italian officers and officials over the Southamptons.

It was found more comfortable and convenient for all airmen to sleep in the flying-boats, and this was done.

During the day a cable was received from Athens stating that the fuel had not yet arrived at Suda Bay although despatched a week before by motor caique. The cable added that possibly moorings and fuel could be arranged at the Greek air station at Phaleron Bay, Athens. Air Ministry were sent a copy of this cable and informed that the flight would remain at Brindisi pending another cable from Athens.

Thursday, October 27. At Brindisi.—Aircraft were fuelled up to 500 gallons of petrol first thing in the morning in case enough petrol was not available at Athens. A further cable was received from Athens stating that nothing had been heard of the petrol caique. It was therefore decided to fly to Athens at dawn on Friday and carry on to Suda Bay if the petrol had arrived there. A cable was sent to Athens notifying this decision and the quantity of fuel required. An additional 5-gallon drum of oil was taken on board each flying-boat. All personnel slept on board.

Friday, October 28. Brindisi-Athens. 340 miles. (4 hrs. 55 mins.; 69 knots).—A fine morning with 4/10 cloud and N.W. wind of 15 m.p.h. The flight took off in formation just before daylight and had a good flight to Phaleron Bay, which was reached at 10.20. The wind during the flight was variable but mainly favourable. The flight secured to seaplane moorings off the Greek air station, and since the winds were light northerly, rode quite safely and comfortably.

The flight was met by officers from the Greek air station, and by officers of the British Mission under Wing-Commander Edmonds. As there was still no news of the petrol caique all the aircraft were refuelled to 500 gallons without difficulty from 40-gallon barrels in preparation for the direct flight to Aboukir on the following day.

The Officer Commanding Flight with Wing-Commander Edmonds, called on the President, the Minister of Marine, the Prime Minister and the Officer Commanding the Greek air station.

The head of the British Legation, the Minister of Marine and several Greek officers were shown over the Southamptons during the afternoon. All the personnel slept on board the boats.

Saturday, October 29. Athens-Aboukir. 500 miles. (6 hrs. 35 mins.; 76 knots).—The flight left Phaleron Bay in formation at 06.25 the wind at the time being nil. Shortly after taking off the wind sprang up and increased to N.15 20 knots, afterwards as the Egyptian coast was approached, decreased to N.E. 10 knots. A few rain storms were flown through between Athens and Crete. The weather, however, cleared up after Crete and Alexandria was sighted dead ahead at 12.20 hrs.

The flight landed in formation at 12.55, and were met by Group Captain Board, representative Air Officer Commanding Middle East, and Group-Capt. Brooke, Commanding the Royal Air Force Depot. All the personnel were accommodated at the Royal Air Force Depot.

Sunday, October 30 and Monday, October 31 were spent on routine inspections, overhauls and cleaning down.

Tuesday, November 1. At Aboukir.—S.1151 was fitted with one Aboukir made propeller for air tests and made a satisfactory flight of 10 min. with it. Flying-boats refuelled to 500 gallons.

Wednesday, November 2. At Aboukir.—Routine inspections completed. The flight were most hospitably treated at Aboukir and everything possible was done to assist them.

Thursday, November 3. Aboukir-Alexandretta. 440 miles. (6 hrs. 30 mins.; 68 knots).—The flight left Aboukir in formation at 06.00 hrs. and after flying through or round frequent heavy thunderstorms, landed at Alexandretta at 12.30 and secured to buoys laid off the town. W/T could not be used during the early part of this flight owing to the thunderstorms.

The petrol (in 4-gallon tins) was brought alongside each flying-boat in small lighters directly the flight had secured to the buoys, and refuelling to 500 gallons per boat was completed in about 2 hrs.

The officers were quartered with various residents, the duty officer and the airmen slept on board the flying-boats. There was heavy rain during the evening and night.

Friday, November 4. At Alexandretta.—S.1150 found it necessary to change both airscrews as the brass on each blade had begun to bulge and draw the fastenings. A test flight of 10 mins. was carried out to test the new airscrews. This was quite satisfactory. Many visitors inspected the flying-boats.

All officers and airmen slept on board the flying-boats.

Saturday, November 5. Alexandretta-Ramadi. (8 hrs. 30 mins.; 49 knots).—Rain fell in the early morning but cleared away before daybreak, allowing the flight to leave in formation at 06.00, the wind being S.W. 5 m.p.h. Some difficulty was experienced in getting through the pass in the mountains behind Alexandretta, owing to the down currents and low clouds. One French aeroplane (Breguet) accompanied the flight through the mountains and was joined by several others near Aleppo. These aeroplanes escorted the flight as far as the river and then returned to Aleppo.

After crossing the mountains it was found that there was an easterly wind of about 25 knots on the surface and even flying low over the desert at 200 ft. it was only possible to average 45 knots ground speed. At 08.15 the river Euphrates was reached at Meskene and course set along it.

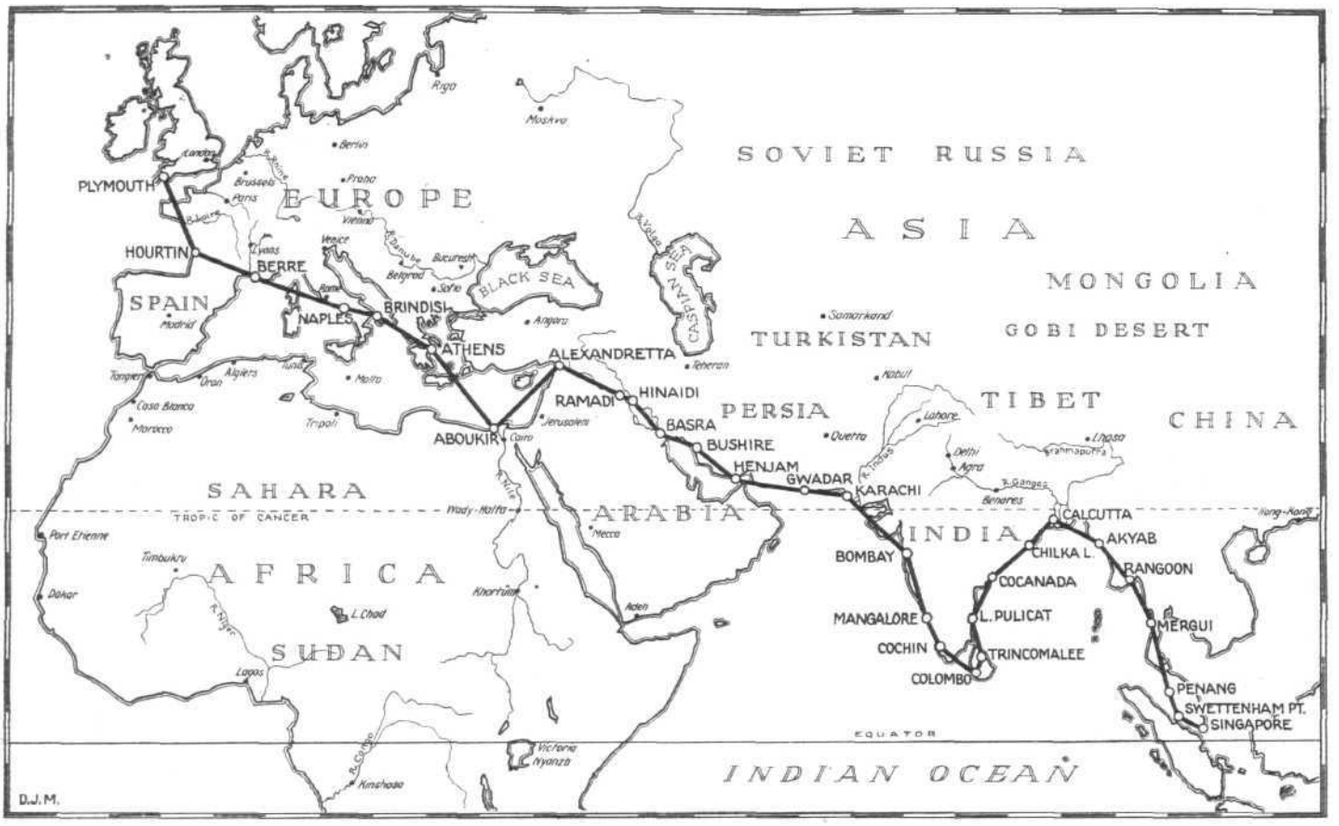
At 1,000 ft. the airspeed was increased to 75 knots as progress was still slow. From 08.30 until 11.30, the flight was passing through heavy rain, which later gave way to dust. The clouds during this period were about 400 ft., and the visibility a few hundred yards. As a more or less direct course was steered, the flight was sometimes over the river, but more often over the desert and in many Arab camps the low flying formation caused considerable movement amongst the cattle and people. At 09.35, Baghdad reported the wind as being S.E. 25 m.p.h. at the surface and 51 m.p.h at 1,000 ft. It then became obvious that unless the weather improved, the flight had insufficient fuel left to reach Baghdad. At 12.30 the ground speed again dropped to 50 knots and it was decided to land at Ramadi—60 miles from Hinaidi, and refuel from the emergency landing ground there.

The flight, therefore, landed one by one in the river at 14.30 and rode to their anchors for the night. Thirty gallons of petrol was taken in by each boat during the evening by means of one of the collapsible dinghies, no local boats being available.

During the later stages of the flight the atmospherics stopped W/T. communication between the flight and Baghdad. On landing at Ramadi, it was found that land line communication had been stopped by the storm, and it was late in the evening before a signal could be got through that the flight was safe at Ramadi, and needed no assistance.

Sunday, November 6. Ramadi-Hinaidi. 60 Miles (1 hr. 10 mins.; 51 knots).—Owing to an unfavourable weather report from Baghdad the flight did not leave at 06.00 as intended. At 08.00 heavy rain set in, but cleared enough to allow the flight to leave at 09.35. All the aircraft grounded lightly on sandbanks, whilst worming through. The sandbanks could not be seen either from the air before landing, or from the surface and they were difficult to locate by sounding whilst taxying. All the aircraft got off without damage. After 1 hour and 10 minutes flying, the flight landed at Hinaidi in succession and secured to special moorings laid by the R.A.F. Depot. The river channels were clearly buoyed and the arrangements made by the Royal Air Force were excellent. The personnel were welcomed by the Air Officer Commanding Iraq, who immediately inspected the Southamptons.

All the personnel slept ashore during the stay at Hinaidi.



R.A.F. FLYING-BOAT CRUISE: The route followed to Singapore.

FLIGHT

A shore guard was arranged by Officer Commanding Depot to watch the flying-boats during the night, whilst a motor boat was also kept standing by. Heavy thunderstorms were experienced during the evening, but the flying-boats were quite secure at their moorings.

Monday, November 7, at Hinaidi.—All aircraft were refuelled to 400 gallons during the forenoon. This was carried out by means of 5-gallon drums brought out in dinghies. As is usual with 5-gallon drums, the petrol was dirty and trouble was experienced with the refuelling pump filter choking up.

S. 1149 found both wood airscrews had similar defects to those found in S. 1150 at Alexandretta. As the spares for the flight had not arrived at Hinaidi, temporary repairs were carried out which lasted to Basra, where two new wooden airscrews were fitted.

Tuesday, November 8. At Hinaidi.—The Air Officer Commanding, King Ali and his Prime Minister, inspected the flying boats during the morning, and King Ali was taken for a short flight over Baghdad in S. 1151. He expressed great interest and pleasure in the experience.

All the personnel of the flight were inoculated against cholera at Hinaidi Hospital, as there was an epidemic in Iraq at the time.

Wednesday, November 9. At Hinaidi.—Many visitors were shown over the flying-boats during the day.

During the stay at Hinaidi great hospitality was shown to the flight, and everything possible was done to make the personnel comfortable and to assist with the work.

Tuesday, November 10. Hinaidi-Basra. 260 Miles. (4 hrs.; 65 knots).—At 09.00, the flight took off in succession and after circling Hinaidi in formation, proceeded down the Tigris to Deala, and thence to the Euphrates and down that river to Basra, which was reached at 13.00. The weather throughout was perfect, the wind being light S.E. breezes.

The four buoys for the flying-boats were situated on the left side of the river opposite the Royal Air Force Depot. The river at this point is about 300 yards wide, and has a current of about 3 knots. The great objection to this mooring site is the native boat traffic which passes constantly day and night, and, if there is no wind, completely out of control. To guard against this serious risk, an officer of the flight was detailed to patrol in a motor boat during the hours of darkness, and a guard boat was anchored at each end of the line of moorings with an officer and four airmen on board, with an Aldis lamp which lit up any passing craft. The searchlight from the gunboat *Grayfly* was also turned on to the flying-boats at intervals during the night. These precautions kept the flight free from damage during their stay, but many native craft had to be towed clear and one lightly fouled a flying-boat without damaging it..

During the afternoon the flying-boats were refuelled to 400 galls. from 5-gall. drums brought out in dinghies. All the personnel slept ashore at the R.A.F. depot.

Friday, November 11. Armistice Day at Basra.—The two minutes silence was observed on board the flying-boats at 11.00 hours local time.

A cable was received during the day giving the disposition of H.M. ships in the Persian Gulf, also a cable from Bushire stating that quarantine (cholera) was unavoidable at Persian ports and the personnel could not be allowed to land in Persia. The flight were most hospitably received and given every possible assistance at Basra.

Saturday, November 12. Basra-Bushire, 190 miles. (2 hrs. 45 mins.; 69 knots.)—The flight took off in succession at 07.55, escorted by five D.H.9 A's from the squadron at Shaiba. The weather was perfect, and after an uneventful flight the flying-boats flew over H.M.S. *Enterprise*, which was anchored six miles off Bushire, and landed in the harbour at 10.40.

During the flight W/T communication was established with several merchant ships in the Gulf on 600 m.

The seaplane moorings were laid inside the river opposite the town of Bushire, and were satisfactory in every way. The Presidency launch *Percy Cox* immediately brought out fuel, which was shipped to the flying-boats in native boats and a naval dinghy from *Enterprise*.

All aircraft refuelled immediately to 400 galls., after which the personnel had lunch on board the *Percy Cox*. The Persian Military Governor was shown over one of the boats and appeared to be impressed.

Except for one duty officer, all the officers had dinner and spent the night on board H.M.S. *Enterprise*.

Sunday, November 13. At Bushire.—Personnel not allowed to land owing to quarantine, and the day was spent cleaning up the flying-boats. The river being free from sharks, bathing was permitted from the flying-boats—an opportunity every one took advantage of, as the problem of baths, especially for the airmen, is a difficult one.

Enterprise left during the afternoon to meet the flight at Henjam, in accordance with orders issued by S.N.O., Persian Gulf.

The weather during the stay at Bushire was perfect, with a temperature of 80° F. inside the hull and a light N.W. breeze.

Monday, November 14. Bushire to Henjam, 348 miles. (4 hrs. 40 mins.; 74 knots.)—A fine clear morning with N.E. wind of 5 m.p.h. The flight took off in succession at 07.30 and, by request, passed low over the town in formation. At 10.10 course was altered to pass over *Enterprise*, 10 miles off Sez Kais. The flight flew past her in close formation. Helped by a steady following breeze, the flight made good time along the desolate coast, landing at Henjam at 12.10.

Refuelling to 400 galls. was immediately carried out from native boats, 4-gall. tins being used. The mooring and refuelling facilities were entirely satisfactory.

The captain of H.M.S. *Triad* visited the flight and was shown over one of the flying-boats. Five officers slept on board H.M.S. *Triad*. Two were put up ashore by the Superintendent of Telegraph. The airmen slept on board the flying-boats and went on board *Triad* for food and baths.

Henjam is a small, barren, rocky island which is used as a base by H.M. ships stationed in the Gulf. The Navy have made a golf course, cricket ground, and tennis court. There is also a small club for officers and canteen for ratings. The Persian Gulf telegraphs have a telegraph and W/T station on the island, and go-downs for naval stores are situated close to the pier.

Tuesday, November 15. At Henjam.—The captain of H.M.S. *Enterprise* and many officers from *Enterprise* and *Triad* and the local native authorities were shown over the aircraft. Flying Officer Scott was taken sick during the day and was treated by the medical officer on board H.M.S. *Triad*; he was able to leave with the flight on the following day. This was the only case of sickness since the flight started, the general health of the crews being excellent. During the afternoon all the personnel landed on Henjam Island for exercise.

Wednesday, November 16. Henjam-Gwadar, 380 miles (5 hrs. 40 mins.; 66 knots).—The flight took off in formation at 0730 hrs., the weather being perfect. Wind N.E., 5 m.p.h., and visibility exceptional. During the flight W/T communication was maintained with the B.I. mail steamer *Parsova en route* to Karachi from Basra.

The mooring and fuel arrangements had been made from Karachi and were quite satisfactory, although the use of 2 gallon tins for the first time during the cruise made refuelling rather slow, as time is wasted opening the stoppers, and tins cannot be emptied into the refuelling tank quickly enough to keep the refuelling pump supplied to its full capacity. The flight only refuelled to 300 gallons per boat, so as to assist the "take-off" in case the swell increased.

The flight was met by the Political Officer for Makran, who had travelled down from Quetta with his escort to welcome the flight and render any assistance required. In order to relieve him from another long journey by camel and car back to his district he was offered and accepted a passage to Karachi in one of the boats of the flight. All the flight personnel slept on board the flying-boats.

Thursday, November 17. At Gwadar.—Officers and airmen landed in relays for exercise during the day. During the morning a breeze blew up from the East, and a considerable swell rose immediately, enough probably to prevent a take-off with full load. Later the wind died down, but a slight swell remained all the time the flight were at Gwadar. The local representative of the Sultan of Muscat and other local notables visited the boats. All the personnel slept on board.

Friday, November 18. Gwadar-Karachi, 260 miles (3 hrs. 35 mins.; 72 knots).—The flight took-off in formation at 0730, there being no wind at the time, a clear sky and good visibility. Owing to the swell the flying-boats taxied under the lee of the promontory and took-off along the swell. No trouble was experienced and all took-off well. Capt. Smith, the Political Officer, was taken as passenger in S.1150 and expressed his appreciation for the trip.

A few miles off Karachi the flight were met by an escort of D.H.9A's and Bristol Fighters from Royal Air Force Depôt. The flying-boats landed in Karachi harbour in succession at 1055, and were met by the G.O.C. Sind, Officer Commanding Royal Air Force Depôt, and many local officials.

The moorings for the flying-boats are laid in the river opposite the shipping wharves, and are quite satisfactory except that a constant stream of traffic passes close to the aircraft, and there is danger of collision, particularly when the wind drops and the sailing craft are drifting on the tide. Arrangements have been made with the harbour police to have patrol boats constantly on watch, and an officer and four airmen are always kept on board the flying-boats to act as a guard.

ROYAL AIR FORCE PROMOTIONS

EXTREME pressure on our space has made it impossible to allude hitherto to the new system of promotions in the Royal Air Force which will come into force on July 1 next. Hitherto all promotion above the rank of Flying Officer has been by selection, and this method will still obtain in the case of promotion to Wing Commander and all ranks senior to this.

The new scheme is based on a system of antedates, by means of which seniority will be weighted so as to give earlier promotion to officers who have acquired certain specialist and other service qualifications or who are recommended as specially suitable for accelerated promotion to the ranks of Flight Lieutenant and Squadron Leader. The new scheme does not apply to officers who are permanently unfit or are unqualified for duty as pilots, or to officers seconded or attached from the Royal Navy and Army.

Officers are expected to commence specialist training after four years' service. In addition to qualifications in such specialist subjects as engines, photography, navigation, etc., a Flying Officer may gain an antedate by becoming a flying instructor; a Flight Lieutenant by graduating at a staff college; and both by becoming interpreters in Eastern languages (*i.e.*, Japanese, Arabic, Persian, Turkish, or Russian).

Before a Flying Officer can be promoted he must have served for three years in that rank and for two of them in a flying unit, have passed promotion examination B, and have been recommended by his A.O.C.

Before a Flight Lieutenant can be promoted he must have served for five years in that rank, have passed or been excused promotion examination C, and have been recommended by his A.O.C.

Flying Officers may receive an antedate of six or twelve months if specially recommended for accelerated promotion, another six or twelve months on account of specialist qualifications, and another six months on account of having qualified as an interpreter; but the total antedate will not exceed 24 months.

Flight Lieutenants may receive an antedate of as much as 36 months on the ground of special recommendation, another 12 or 24 months for specialist qualifications, 12 months for interpretership, and 12 months for graduation at a staff college. The maximum total antedate, however, is not to exceed 48 months.

Lists of Flying Officers and Flight Lieutenants will be compiled, and officers will be promoted in turn at convenient intervals.

Flying Officers who are repeatedly passed over for promotion may be retired on the grounds of unsuitability. Flight Lieutenants and senior officers may be permanently passed over for promotion but retained in the service until retired for age.

F. A. DE V. R.

PRIVATE FLYING

A Section of FLIGHT in the Interests of the Private Owner, Owner-Pilot, and Club Member

THE "KORSA I"

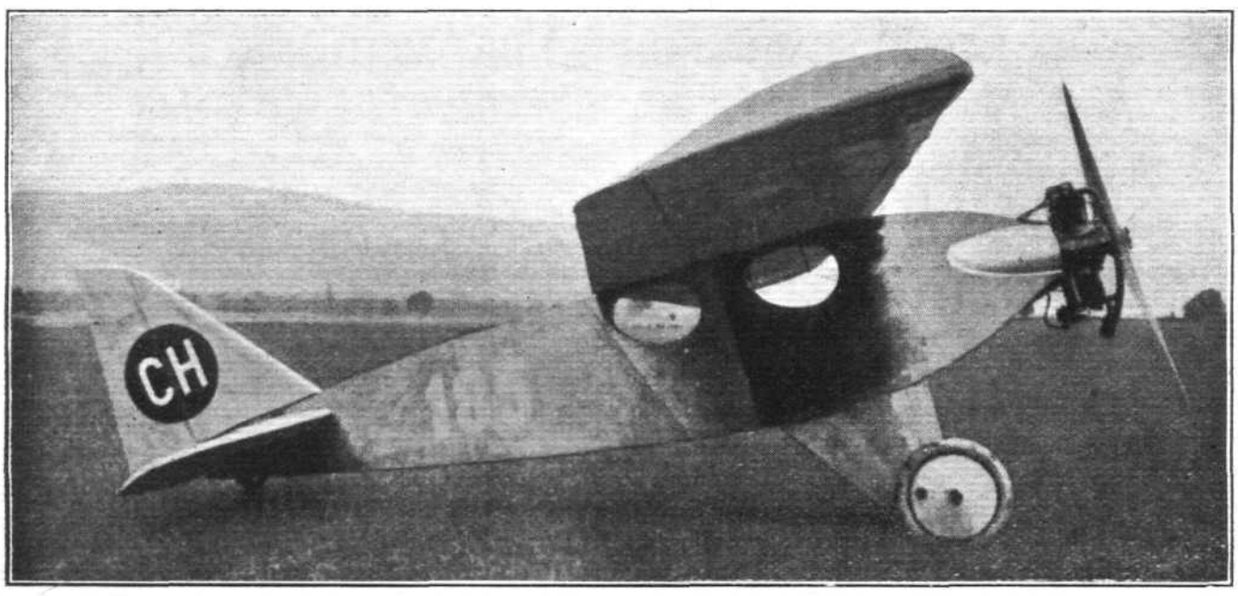
A Swiss Light 'Plane with 50 H.P. Anzani Engine

SIMPLICITY appears to be the keynote of the little two-seater light 'plane recently produced in Switzerland, and known as the "Korsa I." This machine, designed by the Swiss engineer, Hugo G. Schmid, and built at the Korsa works at Altstetten, Zürich, is a parasol cantilever monoplane, and is characterised mainly by three features: The very narrow base of attachment of wing to fuselage, the trapezoidal cross-section of the latter, and the cantilever undercarriage "legs."

A SWISS LIGHT 'PLANE: Three-quarter front view of the "Korsa I" monoplane, which is fitted with a 60 h.p. Anzani engine.

The monoplane wing is of wood construction, with spruce spars and three-ply leading edge, the rest of the wing being fabric covered. The wing is in two halves, designed for easy dismantling, and it will be seen that there are no struts whatever. In view of the fact that the top of the fuselage is only a few inches wide, it would appear that the internal bulkhead of the fuselage would have to be rather substantial so as to take not only torque reaction loads, but also such loads as might be imposed by a fairly violent use of the ailerons during a roll, for instance. Even taxying over rough ground, with first one and then the other wing tip dropping suddenly, some not inconsiderable stresses might be set up, owing partly to the inertia of the wing and partly to the damping action of the air on it.

The fuselage is, as we have already said, of trapezoidal



A SWISS LIGHT 'PLANE: Side view of the "Korsa I" monoplane, which is of the totally enclosed cabin type.

FLIGHT

cross section, the sides sloping inward at a fairly pronounced angle from the bottom longerons to the top. Doubtless this arrangement was chosen in order that the view from the "cabin" might be reasonably good. The cabin is entered by a door in the side, and except for the openings in the walls, the occupants are enclosed. Probably the view diagonally forward is not too bad, but it is entirely cut off in an upward direction by the wing. As the machine is intended for touring rather than racing, this fact may not be really of great moment, but we doubt whether the arrangement would find favour in this country. The fuselage is ply-wood covered from the nose to aft of the cabin, the rest being fabric covered.

The 50 h.p. Anzani engine is uncowled and unfaired except for a small aluminium fairing on each side to merge the crank case into the sides of the fuselage. The petrol tank is situated in the wing, gravity feed being employed.

Of unusual design is the undercarriage, which consists of two "trouser legs" entirely independent of each other, and each carrying a wheel on a short stub axle. The two struts are cantilevers, and must be fairly heavy to withstand not only such side loads as may be imposed by landing with a slight drift, but also lateral bending due to the method of mounting the wheels.

The "Korsa I" is certainly of clean design, and in view of its various unusual features we have thought that this brief description might be of interest in showing how a Swiss designer has tackled the problem of a light two-seater.

Following are the main data relating to the "Korsa I":—

Wing span, 12 m. (39·3 ft.); length overall, 6·8 m. (22·3 ft.); wing area, 17·5 sq. m. (188·5 sq. ft.); weight empty, 300 kg. (660 lb.); useful load and fuel, 260 kg. (572 lb.); gross weight, 560 kg. (1,232 lb.); wing loading, 32 kg./sq. m. (6·54 lb./sq. ft.); power loading (on 50 b.h.p.), 11·2 kg./h.p. (24·6 lb./h.p.) span²/W 1·25; "wing power," 2·86 hp./sq. m. (0·265 h.p./sq. ft.); maximum speed, 150 km./h. (93 m.p.h.) economical cruising speed, 120 km./h. (74·5 m.p.h.); landing speed, 55 km./h. (34 m.p.h.); climb to 1,000 m. (3,280 ft.) in 4·5 minutes; practical ceiling, 5,400 m. (17,700 ft.). Full-throttle range, 1,000 km. (620 miles); range at cruising speed, 1,200 km. (745 miles). Petrol consumption, 12 litres per 100 km. (23·5 miles per gallon).

Everling Quantities

$$\text{High-speed figure } \frac{\eta}{2k_D} = 22$$

$$\text{Distance figure } \eta \frac{L}{D} = 6{\cdot}3$$

$$\text{Altitude figure } \eta \frac{L}{D} \sqrt{2k_L} = 8{\cdot}8$$

All three figures are high and point to an efficient design, provided the performances claimed are actually attained.

FLYING IN KENYA, E. AFRICA

WE publish here an interesting letter from Kenya, describing the interest in flying there, with the pathetic reminiscence that the writer, Mr. Dudley Cowie, has since been killed in the recent air crash with Mrs. Carberry, who was also killed. He wrote:—"Flying has progressed tremendously in Kenya. A very enterprising Aero club has been started and several people have already imported machines, while I hear that negotiations are being carried out for the commencement of a commercial scheme to serve the three countries: *i.e.*, Kenya, Uganda and Tanganyika.

"Flying conditions here are voted better than in Europe or England, and the fact that practically the whole country offers numerous and safe landing grounds where machines could alight in the event of trouble, together with the absence of any fogs whatever are additional factors in favour of flying in Kenya. The only disadvantage experienced so far is the high altitude of most of the aerodromes, which are situated at from 5,000 to 6,000 ft. above sea level, necessitating a much higher landing and taking-off speed.

"About three months ago, the capital, Nairobi, enthusiastically greeted the arrival of three machines: a Fokker monoplane owned by Mr. John Carberry, a de Havilland "Moth" owned by Lieut.-Commander Robinson who, I understand, has undertaken the de Havilland agency in Kenya, and a Klemm-Daimler machine which is being advertised by a local firm. All three machines, although the former two are privately owned, undertook passenger flights, with the result that from a practically unknown sport, flying has become the week-end hobby of most Kenyans. I have been up several times and it is most delightful to view a country from the air, which 15 or 20 years ago, was travelled almost entirely on foot, and where the proud possessor of an ox waggon and team was held in the greatest respect and envy by the less fortunate.

"Recently, the Fokker was taken over the plains, and its daring pilot amused himself and his passengers by diving low over the herds of game which abound, causing great consternation among them.

"Another point of interest is that this same machine flew out from England alone. To the uninitiated, this may not sound such a tremendous feat, but when I say that there are many stretches (apart from flying over the Mediterranean) of a thousand miles or over, where it would be impossible to land without wrecking the machine, perhaps the magnitude of the undertaking will be appreciated.

"In commencing this letter, it was my intention merely to thank you most sincerely for your courtesy and promptitude in dealing with my last letter, also for the great trouble you took in sending me most full details (of light aeroplanes, Ed.), but while still wishing to do so, it occurred to me that your readers may be interested in news from far away Kenya, so that I have expanded the letter with these few local notes."

First Air Meeting

From another source we learn that Kenya's first flying meeting was held at the Nairobi Aerodrome recently under the auspices of the Aero Club of Kenya and Cobham-Blackburn Air Lines, Ltd. A large and representative crowd collected at 4 p.m., amongst those present being Sir Alan Cobham, Sir Edward and Lady Denham, Major E. S. Grogan, and Capt. Gladstone. Four machines participated: Mr. John Carberry's Fokker "Universal" monoplane, Mrs. Carberry's D.H. "Moth," Commander Robinson's D.H. "Moth," and Messrs. Africana's "Klemm-Daimler." Proceedings started with exhibition flights by the three smaller machines, Commander Robinson thrilling the audience with a series of stunts, which included looping the loop and other contortions.

The programme, apart from exhibition flights, consisted of three events. The first was a race over a course of 23 miles, in which the two D.H. "Moths." conceded the Klemm-Daimler 5 mins. start. This event was won easily by Mr. J. Carberry, who maintained a speed of 86 miles per hour, in spite of three circles being included in the course; the Klemm-Daimler, which is not designed for racing, coming in serenely several minutes after both D.H. "Moths" had settled. A landing competition, however, gave the little Klemm an opportunity of demonstrating its powers. The third competition consisted of dropping bombs—paper bags filled with white flour—on to a moving motor-car. This is evidently not so easy as one might think, very few direct hits being registered; the winner proving to be Mr. Graham Dawson, who was carried as a passenger in one of the D.H. "Moths." A considerable number of the public participated in this event, numerous ascents being made by the two D.H. "Moths" and the "Klemm-Daimler" in order to test the marksmanship of as many venturesome spectators as could be accommodated in the time available.

In a brief speech, during the prize distribution ceremony, Sir Alan Cobham stressed the admirable flying conditions in Kenya and foreshadowed at an early date a regular commercial air service between Khartoum, Kisumu, Nakuru, and Nairobi. As a matter of fact, many commercial flights have already been made. Two enterprising partners in a Nairobi motor firm chartered Mr. Carberry's Fokker for the purpose of inspecting their branches at Nakuru, Eldoret, and Jinja, and speak very highly of the advantages offered to busy men by this comfortable form of transport. Trips between Nairobi, Nyeri, Nakuru and Eldoret have frequently been made, and no news has been received of a single forced landing.

Avro "Avian" in Australia

THE Larkin Aircraft Supply Co., Ltd., of Melbourne, Australia, are the Australian representatives for Messrs. A. V. Roe and Co., Ltd., and Messrs. A. D. C. Aircraft, Ltd. Four Avro "Avian-Cirrus" light aeroplanes were recently landed in Australia for training and demonstration purposes.

Pilot's "A" Licence

WE have already reviewed Mr. John F. Leeming's little book entitled "Pilot's 'A' Licence," which makes clear and simple what is necessary to know to obtain an "A" licence. It is now in its second edition and published in excellent form by Sir Isaac Pitman and Sons, Ltd., at 3*s.* 6*d.*

LIGHT 'PLANE CLUBS

LONDON AEROPLANE CLUB

REPORT for week ending April 1.—Total flying time, 18 hrs. Dual instruction, 12 hrs. 35 mins. Solo flying, 5 hrs. 25 mins.

Dual instruction.—With Captain F. G. M. Sparks :—F. C. Fisher, Mrs. Fraser, A. J. Richardson, Miss Cholmondeley, Major A. Mason, Miss Fletcher, G. E. Clair, Miss Wilson.

With F. R. Matthews :—J. A. Murphy, Miss Cholmondeley, C. R. Jones, Miss Wilson, R. Ward, J. Brewster, J. Maddock, G. Watson, Mrs. Guest, Major A. Mason, Miss Fletcher, J. C. V. K. Watson.

Solo flying.—E. E. Fresson, J. J. Hofer, H. Solomon, R. Sanders Clark, Miss Fletcher, W. Hay.

Easter Holidays.—Flying will be carried on as usual during the Easter holidays.

BRISTOL & WESSEX AEROPLANE CLUB

REPORT for week ending March 31.—Total flying time, 16 hrs. 25 mins. Dual instruction, 8 hrs. 15 mins.; solo, 6 hrs. 30 mins.; passengers, 1 hr. 40 mins.

Instruction (with Mr. Bartlett) : Messrs. Roberts, Tanner, T. H. Clarke, Girdlestone, Hughes, Kennan, Lysaght, Bathurst, and Miss Huggett.

Soloists.—Messrs. T. H. Clarke and Arnold.

"A" Pilots.—Messrs. Downes-Shaw, Hopper and H. C. H. Bathurst.

Passengers (with Mr. Bartlett) : Miss Porter and Bristol *Times and Mirror* ; (with Mr. Hopper) : Mrs. D. E. Cruse and Mr. Kilsby.

A dull week of bad weather and consequently little flying.

Mr. Bartlett flew to the Isle of Wight on Monday, returning on Tuesday.

HAMPSHIRE AEROPLANE CLUB

REPORT for week ending March 31.—Total flying time, 11 hrs. 40 mins. Dual instruction, 6 hrs. 55 mins.; "A" pilots, 2 hrs. 30 mins.; solo, 1 hr.; passenger flights, 55 mins.; tests, 20 mins.

Instruction (with Flight-Lieut. F. A. Swoffer) : Lieut. Collier, Lieut. Richardson, Sub.-Lieut. Tillard, Sub.-Lieut. King, Miss Grace, Mr. G. B. Parker, Mr. Berney, Mr. Hopper, Mr. Dickson, Mr. Watson Taylor, Mr. Southcliffe, Mr. Wyllie.

"A" Pilots.—Don J. de la Cierva, Mr. Fry, Mr. Cripps, Capt. Kirby, R.N.R., Mr. Wyllie.

Soloists (unlicensed) : Mr. Perfect, Mr. Shepherd.

Passengers (with Capt. Kirby) : Mrs. Swoffer, Mrs. Holmes.

The club will be open at Easter but will be closed on Monday and Tuesday, April 16 and 17.

Total time for the month of March, 105 hrs. 15 mins.—Dual instruction, 50 hrs. 55 mins.; "A" pilots, 27 hrs. 15 mins.; solo, 11 hrs. 10 mins.; passenger flights, 11 hrs. 40 mins., tests, 4 hrs. 15 mins.

LANCASHIRE AERO CLUB

REPORT for week ending March 31.—Flying time, 24 hrs. 45 mins. Instruction, 12 hrs. 15 mins.; solo flights, 8 hrs; passenger flights, 3 hrs.; tests, 1 hr. 30 mins.

Instruction (with Mr. Baker) : Chart, Heath, Weale, Benson, Goss, Miss Hill, Stern, Hills, Johnson, Mills, Harrison, Riley, Faulkner, Tweedale, Garner, Mason, Fallon, Brooking, Slack, Greenhalgh, Caldecott, Cohen, Taylor, Hartley, Magnall, Hardy, Secker, Pattreioux, Stross.

Soloists (under instruction) : Hall, Browning, Stern, Ruddy, Tweedale, Brooking, Cohen.

Pilots : Lacayo, Heath, Caldecott, Crosthwaite, Leeming, Davison, Twemlow, Meads, Michelson, Goodfellow, Hardy, Gattrill, Cantrill.

Passengers (with Mr. Meads) : Goss, Hall. (With Mr. Dobson) : Leeming ; (with Mr. Michelson) : Hammersley ; (with Mr. Leeming) : Lawson, Miss Norbury, Mrs. Norbury, Powell ; (with Mr. Goodfellow) : Miss Carnie, Miss Mothersdale, Miss Vallancey ; (with Mr. Cantrill) : Mr. Mehta ; (with Mr. Twemlow) : Mrs. Twemlow ; (with Mr. Baker) : Miss Lund, Miss Mellor.

Mr. Tweedale made an excellent first solo.

The aerodrome will be closed on Good Friday and Easter Saturday.

NEWCASTLE-UPON-TYNE AERO CLUB

REPORT for week ending March 31.—Flying time, 33 hrs. 35 mins. Dual, 7 hrs. 35 mins. Solo, 10 hrs. 45 mins. Passengers, 12 hrs. 45 mins. Tests, 1 hr. 30 mins.

Instruction with Mr. Parkinson : —Messrs. Maxwell, Brooks, Runciman, Lloyd-Brown, Horn, Percy, Cochrane-Carr, Griffiths, DePledge.

Soloists :—Messrs. Maxwell, Runciman, Brooks, Horn, dePledge, Percy.

"A" Pilots :—Mrs. Heslop, Miss Leathart, Messrs. D. Wilson, R. N. Thompson, J. E. Glenny, C. Thompson, H. Ellis, C. E. Shaw, Dr. H. B. L. Dixon, A. Bell.

Passengers :—Miss Klyver, Mr. Lawson, Mr. Walker, Mr. Temple, Mr. Campbell.

Slight breaks in the clouds enabled Mr. W. L. Runciman, Mr. A. Maxwell, and Mr. G.. E. Brooks to be launched solo, all of whom made excellent first flights and landings.

Further clear periods allowed of the following members carrying out their height tests, all in a very satisfactory manner indeed :—Mr. J. P. dePledge, Mr. Lloyd-Brown, Mr. J. T. Percy and Mr. G. E. Brooks.

NORFOLK & NORWICH AERO CLUB

REPORT for week ending April 1.—Total flying time, 18 hrs. 20 mins.

Instruction with Mr. Fry :—Messrs. E. Varden Smith, A. G. Lofty, C. Browne, E. Lambert, C. Bougret, G. Barker.

Soloists : Messrs. E. Varden Smith, G. Barker, W. P. Cubitt, F. Gough, R. T. Harmer, H. Pank, R. F. Potter, N. Brett, G. Surtees, W. A. Ramsay, C. Gowing, H. Mack, R. W. Moore. Passengers, 12.

Two soloists went off this week ; they were Mr. E. Varden Smith and Mr. Lofty.

The weather has again been unkind to us, and for two days we were unable to take a machine out owing to wind and storms.

In conjunction with the Norfolk Motor Club, we are holding a gymkhana on Easter Monday, and this will be a large attraction. It sounds like a mixed grill, as there are motor cycles, cars, aeroplanes, horses, cycles, and Fords taking part. All for sixpence,too ! Anyhow, it should attract a large crowd, and we hope for fine weather for a change.

SOUTHERN AERO CLUB

REPORT for week ending March 31.—Total flying time, 4 hrs. Dual, 1 hr. 30 mins.; solo, 1 hr. ; passenger flying, 1 hr. 30 mins.

The weather is responsible for our poor report this week ; wind and rain nearly every day.

Monday we spent nearly 2 hrs. flying over the South Down in an effort to find the bear which has escaped from a private zoo. Two new members joined this week.

SUFFOLK AEROPLANE CLUB

REPORT for week ending March 31.—Flying time, 10 hrs. 5 mins.

Instruction with Mr. Lowdell.—Miss G. Rhodes, Dr. Dunn.

Soloists.—Dr. Jas. Sleigh, Mr. R. Brown, Mr. C. N. Prentice, Mr. S. Schofield.

Passengers two.

Below will be found some particulars of the Club's Easter Meeting and "On to Hadleigh" Rally.

YORKSHIRE AEROPLANE CLUB

REPORT for week ending March 31.—Flying time, 16 hrs. 15 mins. Instruction, 6 hrs. 45 mins.; soloists, 8 hrs. 15 mins.; passengers, 35 mins.; tests, 40 mins.

Instruction (with Capt. Beck) : Messrs. Ambler, Clayton, Collins, Cooke, Crowther, A., Crowther, H., Dane, Fitton, Senior, Sugden, Swift, Watson, Wilson.

Soloists.—Messrs. Ambler, Clayton, Crowther A., Crowther, H., Dick.

"A" Pilots.—Messrs. Dawson, Ellison, I. Thomson, Wilson.

Passengers (with Capt. Beck) : Messrs. Paige and McWilliam. (With Mr. Thomson) : Messrs. Clayton and Ellison. (With Mr. Ellison) : Mr. Wood.

A more or less uneventful week with the exception that on Tuesday last Mr. Geoffrey Ambler cracked off into the air with great gusto and put up a very creditable show with the exception of his landing, which gave one the impression that he thought it was Shrove Tuesday.

Mr. Jack Clayton did his low test during the week, and is only waiting for blue sky to do the other one.

"ON TO HADLEIGH" RALLY

THE air display which the Suffolk Aeroplane Club is holding on Easter Sunday and Monday promises to be on a large scale. The programme starts at 10.30 a.m. on both days. It will be under the patronage of Sir Courtenay Warner, Bart., Lord Lieut. of Suffolk, and the Mayor and Mayoress of Ipswich, Mr. and Mrs. W. Rowley Elliston, who hope to be present on both days. Out of respect for the expressed wishes of the Church, no machines will leave the aerodrome for display purposes during Church hours 11-12.30 a.m. and after 6.30 p.m. on Sunday. No objection is raised to visiting aircraft in the "On to Hadleigh" Rally arriving during the morning at the aerodrome. It is possible that all machines present will be light aeroplanes. Events will be roughly as follows :—

Sunday Morning :—Exhibition by the Club's Blackburn "Bluebirds" ; the "On to Hadleigh" (zero hour 11.30 a.m.) ; Miss S. Edwards will spread a "Bluebird" and fly-off ; Mr. G. E. Lowdell, A.F.M., the Club's instructor, will do upside-down flying on a "Bluebird." Sunday Afternoon :—Grand Parade ; Demonstrations of various types of light aeroplanes ; Crazy-Flying. It is probable that the slotted-wing D.H. "Moth" and D.H. "Tiger-Moth" will be flown. Formation flying by different formations, each composed of machines of the same type, will be another event. On Monday Morning :—Exhibition of Club machines ; Light Aeroplane Demonstration ; Formation Flying ; Miss Edwards' Demonstration. Monday Afternoon : Landing Competition ; Slotted-Wing Demonstration ; Pageant of Travel ; Crazy-Flying ; Aerial Golf and Aerobatics. Lady Leucha Warner will present the prizes. It is hoped to arrange an escort of four Blackburn "Bluebirds" for the Lord Lieutenant at the close of the day. There will be joy-rides the whole time. A large number of entries for the Rally has been received, also quite a number of people who are not yet sure of their plans have asked for an extension of the closing date of this. Pilots can now enter as late as Saturday, April 7, providing they send a telegram to the Suffolk Aeroplane Club stating point of departure, make of machine, and registration number.

SPECIAL NOTE.—All pilots flying from Lympne and East Kent are to fly to Hadleigh via Sutton Farm Aerodrome, near Hornchurch, Essex. They are to fly over Sutton Farm Aerodrome at a height of not more than 100 ft. so that the official observer can note registration marks. This course has been adopted to avoid crossing the mouth of the Thames.

The finishing line at Hadleigh is a track across the aerodrome, running north and south, machines arriving are to cross this from west to east. R.A.C. Car Parks, 2*s.* 6*d.* and 1*s.* ; Admittance, 1*s.* 6*d.* ; Joy-Rides, 5*s.* ; Luncheons 3*s.* 6*d.* and 2*s.* ; Teas, 1*s.* 6*d.* and 1*s.* ; Drinks on Monday.

FLIGHT
AIRCRAFT ENGINEER

AIRISMS FROM THE FOUR WINDS

African Survey Flight

In the Short "Singapore" flying-boat, Sir Alan and Lady Cobham with the other members of their expedition arrived at Cape Town on March 30 in the morning. They had flown from Knysna and, after circling False Bay and flying over Cape Town at 5,000 ft., they landed in Simons Bay next to the South African training ship, *General Botha*. This completed the outward journey of the expedition from England. They were received by the Mayor and Corporation of Simonstown, and then motored to Cape Town where they were entertained to luncheon in the City Hall. The R.A.F. officers who had arrived at Cape Town on the annual service flight from Cairo to South Africa in the R.A.F. Fairey III F. machines under the command of Air Vice-Marshal Webb-Bowen, were also guests at the luncheon. Col. Creswell, the Labour Leader and Minister of the Defence, General Smuts, and Sir Abe Bailey, were present. Speaking of his visit to Knysna, Sir Alan said that all the rivers and lagoons he had found between Port St. John and Knysna would make harbours for machines like the Short "Singapore".

The French Air Tourists

Capt. Costes and Lieut. Le Brix, the two French airmen, who have flown from Paris, across the South Atlantic, up South America, through Mexico to New York, and from there across the American continent to San Francisco, arrived at Yokohama (not, we understand, by air!) on March 30, and they expect to begin their return flight to Paris on April 7.

By Light Aeroplane to the Cape

Lady Bailey arrived at Aswan from Luxor in her D.H. "Moth" on March 29, and later flew to Wady Halfa, which was reached after a hard struggle against a sandstorm and in intense heat. The storm blotted out the ground, thus leaving no choice for an emergency landing. This stage took Lady Bailey 125 minutes. On March 31 Atbara was gained and Khartoum on April 2.

The "Red Rose" at Home

Capt. Lancaster and Mrs. Keith Miller, who made the second flight in a light aeroplane from England to Australia, arrived at Sydney in the Avro "Avian" on March 30. The Sydney Aero Club sent an escort of 20 machines to welcome them and on landing they were officially greeted by the acting Premier of the State. Canberra, will be visited next when Mr. Bruce will give them a special welcome.

Hinkler's Latest Flight

In Australia Mr. "Bert" Hinkler flew from Melbourne to Cook Station, a distance of 1,000 miles, in 12 hrs., on March 30, thus making an Australian non-stop record. He will meet his wife at Freemantle on her arrival from England and probably fly back with her to Melbourne. The Federal Government has conferred on him an honorary commission as Squadron-Leader of the Royal Australian Air Force.

Italy's Speed Record

Major de Bernardi set up a new air speed record on March 30 at the Lido, in a Macchi 52 seaplane fitted with a Fiat A.S.3 engine. His average speed over the 3-km. course was 512·776 km. (318·5 miles) per hour. His fastest lap was 348·5 m.p.h. or 561 km. The previous record was also made by him in the same machine soon after the Schneider contest last year. This was 479·290 km. (296·94 miles) per hour. The new record has yet to be confirmed by the International Aeronautical Federation.

French Atlantic Flight

We have already mentioned the proposed Atlantic attempt by the French pilot, M. Drouhin, in a three-engined monoplane which has been designed by M. Couzinet, who will also form one of the crew of six. The engines are apparently three Hispano-Suiza's of 180 h.p. each. Wood construction has been adopted throughout, and the fuselage divided into three cabins, one in front accommodating the pilot and mechanic, one in the rear will be fitted up for the navigator, and the centre cabin will be for "resting." Three petrol tanks are fitted in the wing.

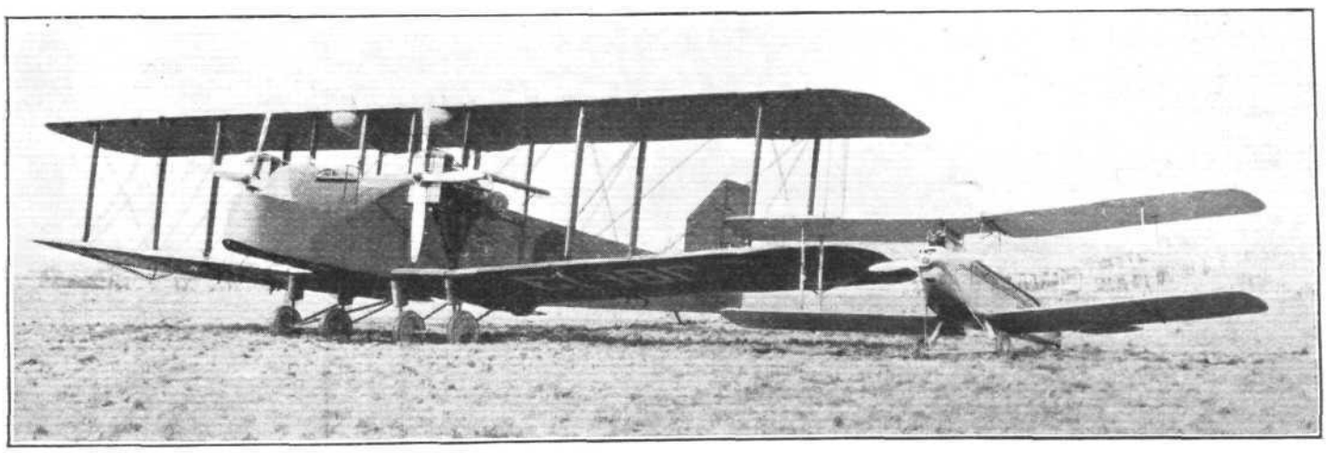
America Makes a Record

Capt. G. Haldeman, the American pilot who attempted an Atlantic flight last year with Miss Ruth Elder and was rescued with her in mid-ocean, set up an endurance record last week with Mr. Eddie Stinson, an American aircraft manufacturer and a very experienced pilot. They used a Stinson-Detroiter machine and remained in the air for 53 hrs. 36 mins., after ascending from Jacksonville, Florida, at 7.37 a.m. on March 28. They landed on March 30 at 1.13 p.m. and still had some petrol left. This performance beat the German record made by Herr Risticz and Herr Edzard last August by 1 hr. 12 mins.

Twenty Years Ago!

Extract from "The Auto." (Precursor of "Flight"), April 4, 1908.

"*Aeroplane Flight in America.*—A trial was recently carried out in America by the Aerial Experiment Association—a body formed in 1907 by Dr. Alexander Graham Bell—with a double-decked machine, which resulted satisfactorily in a flight of 318 ft. at a height of about 15 ft. above the ground. The experiment took place on the ice-bound Lake Keuka, near Hammondsport, N.Y., on the 12th of last month."



["Flight" *Photograph*

AT OPPOSITE ENDS OF THE SCALE: A Handley Page "Hyderabad" and a de Havilland "Moth," both fitted with Handley Page automatic slots. These two machines represent the largest and the smallest to be so equipped up to the present.

BRISTOL "JUPITERS" FOR 1928–1929

DURING 1927 the Bristol Company successfully carried out an intensive development programme in the Engine Experimental and Research Department, with the object of increasing the range of "Jupiter" engines, and have now announced their programme of aero-engines for the ensuing years 1928-1929, which will be as follows :—

The well-known Series VI engine will be continued in its three compression ratios, but with detailed improvements of the cylinder components, which make them interchangeable with the geared and supercharged engines. This ungeared engine will be known as follows :—(*a*) Jupiter VI.A, 6·3 : 1 high compression engine. (*b*) Jupiter VI.AM, 5·3 : 1 medium compression engine. (*c*) Jupiter VI.AL, 5·0 : 1 low-compression commercial engine.

The next series of engines will be the gear-driven supercharged engine. This will be known as Jupiter VII.

The range of engines with the 2-1 reduction gear to the propeller will be known as follows :—(*a*) Jupiter VIII, 6·3 : 1 high compression engine. (*b*) Jupiter IX, 5·3 : 1 medium compression engine. (*c*) Jupiter XI, 5·0 : 1 low compression commercial engine.

The following general particulars of the "Jupiter" engines may be of interest.

In addition to the standard type, the "Jupiter" engine is now available fitted with a gear-driven supercharger, or with a reduction gear, making it suitable for all types of installations.

The series VI.A consists of the well-known Series VI engine with a number of detailed modifications and improvements, as a result of the last three years' work. All these improvements are automatically incorporated in the new engines.

The following are brief particulars of the various types; the performances quoted are the guaranteed minimum figures under standard temperature and pressure conditions, and with Standard Air Ministry Service Fuel, 80 per cent. Shell aviation, plus 20 per cent. benzol.

(1) *Series VI.A. Standard Service Engine* 6·3 : 1 *Compression Ratio.*—Throttled on ground, 415 b.h.p. at 1,700 normal r.p.m. Rated at 5,000 ft., 415 b.h.p. at 1,700 r.p.m. Maximum permissible r.p.m., 1,870.

(2) *Series VI.A.M. General Purpose Engine* 5·3 : 1 *Compression Ratio.*—Rated at ground level, 440 b.h.p. at 1,700 normal r.p.m. Maximum permissible r.p.m., 1,870.

(3) *Series VI.A.L. Commercial Engine* 5 : 1 *Compression Ratio.*—Rated at ground level, 420 b.h.p. at 1,700 normal r.p.m. Maximum permisible r.p.m., 1,870.

(4) *Series VII. (Gear Driven Supercharger). Standard Service Engine* 5·3 : 1.—Throttled on ground, 375 b.h.p. at 1,775 normal r.p.m. Rated at 12,000 ft., 420 b.h.p. at 1,775 r.p.m. Maximum permissible r.p.m., 1,950.

(5) *Series VIII. (Reduction Gear* 2 : 1 *Ratio). Standard Service Engine* 6·3 : 1 *Compression Ratio.*—Throttled on ground to 410 b.h.p. at 2,000 normal engine r.p.m. Rated at 5,000 ft., 440 b.h.p. at 2,000 r.p.m. Maximum permissible engine r.p.m., 2,200.

(6) *Series IX. (Geared* 2 : 1). *General Purpose Engine* 5·3 : 1 *Compression Ratio.*—Rated at ground level, 485 b.h.p. at 2,000 normal engine r.p.m. Maximum permissible engine r.p.m., 2,200.

(7) *Series XI (Geared* 2 : 1). *Commercial Engine* 5 : 1 *Compression Ratio.*—Rated at ground level, 460 b.h.p. at 2,000 normal engine r.p.m. Maximum permissible engine r.p.m., 2,200.

During 1927 a certain amount of development work on the "Jupiter" was carried out. A brief résume of this work may be given as follows.

An improved type of cylinder and piston, to cope with the increased r.p.m. of the geared and supercharged engines, has been very fully tested out on the single-cylinder test bed.

The general design follows the well-known "Jupiter" cylinder construction, with additional cooling fins, and the incorporation of triple valve springs and ball-bearing rocker gear. The improvements have been included in the whole series, making them interchangeable as regards cylinder components.

The supercharger as applied to the "Jupiter" VII has been developed to maintain ground level power to 12,000 ft., with an increase in weight due to the blower of only 40 lb.

The gearing and drive for this blower has been the subject of most careful work, and before being released has been run for some thousands of hours on a specially designed test bed.

This engine is specially intended for high performance scouts, and gives remarkable improvement on the performance at altitude, the improvement over the Series VI on similar machines being over 20 per cent. on climb and 10 per cent. on speed.

A valuable feature in connection with the design of the Series VII. supercharged engine is that it is interchangeable as regards installation with the Series VI.A. engine.

The Bristol Company have acquired the patent rights for Great Britain for the well-known Farman bevel-reduction gear, and this gear has been applied to the "Jupiter" engine with considerable success.

Hundreds of hours' running have been undertaken on the test bench, and some eight different types of machines fitted with these engines have been tested out with excellent results both as regards engine and machine performance.

The gear as applied to the "Jupiter" engine has proved very robust, efficient and silent.

Very extensive flight tests have been carried out and detailed improvements made to the Bristol triplex carburettor, to cope with the increased speed of the geared and supercharged engines.

The increased engine r.p.m. on the various engines has necessitated modifications to the earlier types of ring, and extensive tests have been undertaken. As a result an entirely new design of ring has been produced, in which back pressure has been reduced to under ½ lb. per sq. in., and the ring temperatures brought down to an absolutely safe limit.

The types of rings are at present available, one for the Series VI.A. ungeared engines and one for the geared engines; both these rings have been type-tested and are in production.

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AIR MINISTRY NOTICES

1.—Reduction of Congestion on the 900-Metre Aircraft Wave. 2.—Position Reports

1. THE following instructions have been laid down in order to reduce congestion on the 900-metre aircraft wave :—

The pilot of an aircraft shall not

(*a*) report the position of his aircraft to a ground station except when passing the specified reporting points or unless in need of assistance

(*b*) ask the ground station for the wavelength of transmission from his aircraft : in the event of such wavelength of transmission being incorrect, this fact will be automatically reported to the pilot by the ground station at the departure aerodrome

(*c*) ask the ground station for the time of his departure from that particular aerodrome.

2. The position reporting points for the Paris-Lyon-Marseilles air route detailed in Notice to Airmen No. 8 of the year 1928 are amended to read as follows :—

Sens, Chalons sur Saone, Lyons, Valence, Avignon.

No. 24 of 1928

Examination for Air Navigators

AN examination for 2nd Class Air Navigators licences will be held at the Air Ministry, Gwydyr House, Whitehall, on Monday and Tuesday, April 16 and 17, 1928.

Application forms, the syllabi, and conditions of examination, may be obtained on application to the Secretary, Air Ministry (C.A.2), Gwydyr House, Whitehall, London, S.W.1.

Formal applications to sit at this examination should be received at the above address, and prospective candidates should give, with their applications, full details of any qualifications and experience they already possess.

Before a licence can be issued, candidates will have to pass a medical examination at the Central Medical Board, 5–6, Clement's Inn, London, W.C.2. Arrangements can be made for this examination to take place on April 18, 1928, if candidates make early application to be examined on that day.

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PERSONALS

Married

CAPTAIN GUY VICTOR LEATHER, late R.N.A.S., younger son of Col. Gerard Leather and Mrs. Leather, of Middleton Hall, Belford, Northumberland, was married on February 21, at Christ Church, Pietersburg, Northern Transvaal, to LORNA MATHEW, daughter of Mr. and Mrs. NORMAN HARLEY, of Pietersburg.

To be Married

The engagement is announced between JACK HADDEN, Black Watch, seconded R.A.F., youngest son of the late Frank J. Hadden, of Hunugalla, Ceylon, and of Mrs. Hadden, 17, Empire House, Thurloe Place, S.W., and CAROLINE MARY (CAROL), younger daughter of CHARLES FARQUHAR, Indian Police (retired), and Mrs. Farquhar, of Craiglarach, Aboyne.

A marriage has been arranged between JOHN MACLAREN PEARSON, late Cameronians and R.F.C., second son of the late C. J. B. Pearson and MRS. Pearson, and BETTINE MARIE HAMILTON, elder daughter of Maj. CYRIL and MRS. POTTER, Blakes, Lymington, Hants.

The engagement is announced between FLYING-OFFICER J. S. PHILLIPS, R.A.F., elder son of the Rev. P. R. Phillips and Mrs. Phillips, of Hildersham Rectory, Cambridge, and MISS NANCY CROFT, of Meadham, Harlow, Essex, third daughter of the late Sir Archer Croft, Bt., of Croft Castle, Herefordshire.

FLIGHT

THE ROYAL AERO CLUB OF THE U.K.

ANNUAL GENERAL MEETING

Lord Thomson, the chairman of the club, presiding at the annual general meeting held on Wednesday, March 28, 1928, pointed out that the activities of the club were mainly concerned with the sporting side of aviation and referred with pleasure to the fact that the Schneider Maritime Trophy was once more in their custody as a club, thanks to the magnificent work of the pilots of the Royal Air Force and the genius of British aircraft and engine constructors.

Apart from this international contest the Royal Aero Club had organised air race meetings at Bournemouth last Easter and Whitsun and had held the King's Cup Race at Nottingham in August.

Air race meetings had also been organised during the year by the following light aeroplane clubs :—Newcastle-on-Tyne Aero Club, at Newcastle; Hampshire Aeroplane Club, at Hamble; Lancashire Aero Club, at Woodford and Liverpool; Bristol and Wessex Aero Club, at Filton; Midland Aero Club, at Castle Bromwich; Yorkshire Aeroplane Club, at Leeds; Nottingham Aero Club, at Hucknall.

The light aeroplane clubs, which numbered six at the beginning of 1927, had now increased to 16, and over 3,000 members of these clubs were receiving flying instruction.

During the year 150 aviators' certificates were issued and private owners, few at the end of 1926, now numbered nearly 100. The very encouraging progress made by light aeroplane clubs was bound to exert great influence in creating the air habit and from the sporting side would give ever increasing impetus to the flying meetings.

The Royal Aero Club had formed a general council on which all these light aeroplane clubs were represented. In addition to the light aeroplane clubs in this country it was satisfactory to record the formation of similar clubs in our Colonies, and the aero clubs in South Africa, Australia, Kenya, India and Burma were now affiliated to the Royal Aero Club.

In regard to international air touring, the Royal Aero Club could claim the credit for the initiation of the "Carnet" after several years' hard work at the Fédération Aéronautique Internationale. This Carnet for aircraft touring abroad enabled the holder to travel without having to make payment for Customs dues on aircraft when arriving in a foreign country. During the past year the club has issued upwards of 100 Carnets to private owners.

There had been many notable achievements during the year and especially with light aeroplanes. There were the flights of Capt. T. N. Stack and Capt. B. S. Leete to India on D.H. "Moths" fitted with Cirrus engines, followed later by an even more remarkable performance by Flight-Lieut. Richard Reid Bentley, also on a "Moth." Lieut. Bentley accomplished the flight from London to Cape Town in 28 days, having covered a distance of approximately 7,250 miles. This performance won for him the Britannia Trophy which was awarded each year by the Royal Aero Club for the most meritorious performance during the year by a British aviator. There was also the flight to Australia by Capt. Lancaster, accompanied by Mrs. Miller on an Avro Avian, Cirrus engine.

During the year three world's records were obtained for Great Britain. The Hon. Lady M. Bailey, on a D.H. "Moth" established the height record for light aeroplanes of 5,268 m. Capt. H. S. Broad, on the "Tiger Moth," D.H. engine, accomplished a speed of 300·1 km. per hour. Flight-Lieut. Webster on the Supermarine S.5, Napier engine, accomplished a speed of 456·522 km. per hour over a 100 km. course.

During the year the club had continued to administer the Flying Services Fund, and it made grants and allowances to parents and children of deceased airmen amounting to £627 13*s.* 7*d.*

The finances of the club had slightly improved during the past year but they still desired more members to relieve any financial anxiety for the future.

The Programme of Official Air Race Meetings for the current year had been fixed, and Sir Charles Wakefield, Bart., had once again made generous contributions to the Racing Fund by gifts of £250 for King's Cup, £500 for the Aerial Derby, and £400 to be divided equally amongst the four Official Meetings to be organised in the provinces :—

May 5	.. Filton, Bristol ..	Bristol and Wessex Aeroplane Club.
May 28	.. Hamble ..	Hampshire Aeroplane Club.
June 9	.. Castle Bromwich	Midland Aero Club.
July 6 & 7	Blackpool ..	Lancashire Aero Club.

In addition, the King's Cup would be held at Hendon on July 20 and 21. It would take the form of a two-day race round Great Britain, visiting the Aerodromes of the Light Aeroplane Clubs, including the Scottish Aeropane Club at Glasgow. The Aerial Derby would, it was hoped, be revived in the autumn over a course round London.

The Royal Air Force had promised to support the Official Meetings with displays by service aircraft.

Committee.—The ballot for the nine vacancies on the Committee was announced as follows :—Air Vice-Marshal Sir W. S. Brancker, K.C.B., A.F.C., Captain R. J Goodman Crouch, O.B.E.; Lord Edward A. Grosvenor; E. J. B How; Colonel F. Lindsay Lloyd, C.M.G., C.B.E.; Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P.; Lieut.-Col. M. O'Gorman, C.B.; Major H. A. Petre, D.S.O., M.C.; Brig.-Gen. Lord Thomson, P.C., C.B.E., D.S.O.

President and Vice-President.—The Duke of Atholl was unanimously re-elected President, and the Duke of Sutherland Vice-President of the Club.

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THE ROYAL AIR FORCE

London Gazette, March 27, 1928.

General Duties Branch.

G. F. Simond is granted a permanent commn. in the rank of Pilot Officer with effect from March 16, 1928, and with seniority of March 16, 1927. The following are granted short service commns. as Pilot Officers on probation with effect from and with seniority of March 16 :—J. A. G. Baker, H. M. S. Barnard, M. I. Barnett, J. Beaumont, F. A. R. Bishop, B. S. Bramble, W. E Catling, R. Chadwick, R. D. Cotton, W. J. Crisham, R. S. Darbyshire (Acting Sub.-Lt. R.N.R.), F. P. Donovan, H. J. Forster, F. C. G. Freeman, O. V. Garratt, O. I. Gilson, E. S. Greenwood, A. N. E. Hall (2nd Lt., 17th London Regt., T.A.), C. P. Hanlon, J. A. Harris, B. W. C. E. Hartwell, E. G. Hitchings, T. R. Hope, H. T. Lines, V. B. Lintott, J. H. Lock (2nd Lt. R. Signals, T.A.), E. D. Mills, R. Mountain, V. H. Nicolay, J. S. Pole, G. E. F. Proctor, J. B. W. Pugh, C. H. Robbins, N. X. Sheldrick, L. H. Snelling, F. B. Taylor, D. Timms, J. G. Walling, R. F. Williams, R. F. A. W. Williams.

The following are granted temp. commns. as Flying Officers on attachment for four years' duty with R.A.F. (March 14) :—Lt., R.N.,—H. C. Toppin. Sub-Lts., R.N.—G. W. Dennis, H. L. Hayes, N. S. Luard, G. R. Maw, G. G. R. Rodd.

The follg. Pilot Officers are promoted to rank of Flying Officer (Jan. 30) :—H. Waring, D. N. Roberts, R. P. H. Utley.

Wing Commdr. O. T. Boyd, O.B.E., M.C., A.F.C., is seconded for three years duty at the Staff College, Camberley (Jan. 21); Wing Commdr. E. L Gossage, D.S.O., M.C., ceases to be seconded for duty at the Staff College, Camberley (Jan. 21). The follg. Flying Officers are transferred to Reserve, Class A :—R. Barrett (March 28); E. F. Mattock (March 31); J. B. L. H. Cordes (April 1); R. B. Fleming (April 1); J. B. Wilson (April 1). Flying Officer C. F. Caunter relinquishes his short service commission on account of ill-health (March 28).

Stores Branch

Flight Lt. G. Baker is restored to full pay from half-pay (March 9). (Substituted for *Gazette*, March 13.) Flight Lt. L. E. Carter, D.C.M., is placed on retired list on account of ill-health (March 28).

Medical Branch

Flight Lt. G. E. Church, M.B., is granted a permanent commn. in this rank (March 28). The follg. Temporary Lieutenants (Dental Surgeons, Gen. List) are granted temp. commns. as Flying Officers on attachment to R.A.F. (March 12); H. E. Glover, G. M. Titterington.

Flight Lt. E. Alston (temp. Capt. Dental Surgeon, Gen. List) relinquishes his temp. commn. on resignation of his Army commission (March 1); (Substituted for *Gazette* March 13).

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

The follg. are granted commns. in Class A.A. as Pilot Officers on probation (March 14) :—F. J. St. G. Braithwaite, J. H. Dixon, D. Price, C. R. F. Wintringham. The follg. are granted commns. in Special Reserve as Pilot Officers on probation :—N. A. Lindley (Feb. 3); R. C. Newton (March 7).

The follg. Pilot Officers on probation are confirmed in rank :—L. R. Stooke (March 21); B. J. A. Webb (March 22).

Flying Officer T. Brewin is transferred from Class C to Class A (March 11). The follg. Flying Officers are transferred from Class A to Class C :—F. Larman (Dec. 9, 1927); J. C. F. Raine, M.B.E. (March 24); J. Craig (March 27).

Flying Officer H. A. C. Atkinson relinquishes his commn. on account of ill-health, and is permitted to retain his rank (March 28); Flying Officer A. F. Wynne resigns his commn. (Feb. 21); Pilot Officer G. F. Simond resigns his commn. on appointment to a permanent commn. (March 16).

IN PARLIAMENT

The Ministry of Defence

DURING the third reading of the Consolidated Fund (No. 1) Bill in the House of Commons on March 27, Sir R. Hutchison, Liberal Member for Montrose, said he wished to examine how far they could alter the administration of the Services so as to get greater co-ordination and control for the three fighting Services. Except through the advisory body known as the Committee of Imperial Defence, there was no real controlling body which could give any unity of action to the three Services.

The Committee of Imperial Defence lacked responsibility and control, and it would probably be a good thing if the Government could gradually change its present advisory position into an executive position. There was no reason why it should not occupy the same position in the Service world as an overriding body, forming a board of control, did in the commercial world. Such a board might be composed partly of full-time officers, who would be the best staff officers we could collect from the various Services, and, as the unified education produced the necessary *personnel*, it would become better and better for the purposes required.

There would have to be a Minister, acting under a prime Minister, because no one could really control the whole of the Services unless they had a Prime Minister—some one like the President of the Council, who had no Department at present, who would be in a position to control all the Services. Money would be voted to the Central Control Department, which, with an expert staff behind it, would then allocate it to the three Services, knowing their difficulties and requirements.

The Prime Minister, Mr. Baldwin, said they were all agreed on one general principle—that they all wanted economy and to avoid duplication. There were, he said, different ways of achieving this end—there were some who advocated a Ministry of Defence in one form or another. He was not going to speak about this matter in any controversial spirit, and was anxious to take into most careful consideration anything that may be suggested on the subject, and to examine it on its merits.

We were, he continued, in a period of transition—evolution was going on, and he thought that a continuation of the present progressive methods, which had been adopted for some years past, was what met our peculiar conditions best.

He would give his reasons for this view. Administratively over-centralization was as great an evil as excessive de-centralization. We had a number of Ministries dealing with the various affairs of State, which had arisen gradually to meet a real administrative need. But no one would consider for a moment the amalgamation of these groups of offices on the civil side. If we did we would have over-centralization and would inevitably lose our grip on the whole. Also, any Minister trying to work a group of this kind would break down.

It must be remembered, Mr. Baldwin pointed out, that in spite of all developments up to date, the work of the Navy was still on the sea, of the Army on the land, and of the Air Force in the air. Each, therefore, had its own very peculiar problems, and the main problem was to see that they all acted on a common principle, and carried out a single policy, and that their various functions and responsibilities were defined and "co-ordinated."

Mr. Baldwin then referred to the various Committees which had in the past considered this question, and said that at the present moment he could see no useful purpose in having a fresh investigation on the lines of those which had taken place so recently.

The present system, he said, hinged to-day, as it had done for many years past, on the Cabinet—the defence policy was a part of the Government's policy, and could not be considered apart from the foreign and Imperial policy for which the Cabinet, as the executive of Parliament, was and must be responsible. But, since the creation of the Committee of Imperial Defence, the Government of the day had been advised by that Committee. This Committee had also been invited to assist the Governments of both India and of the Dominions.

The Committee of Imperial Defence was an advisory and consultative body, but it was possible at any time to convert, in case of emergency, the consultative body into a deciding body. It consisted, theoretically, of the Prime Minister and such persons as he decided to ask to assist in the deliberations of that Committee.

Mr. Baldwin then dealt at some length upon the composition and working of the Committee of Imperial Defence, and stated that the co-ordination of principle, of policy and of detail in the sphere of defensive preparation was very complete.

During the debate, Lieut.-Comm. Kenworthy said that while the three Ministries administered services which should be common to all, there was bound to be overlapping, waste, and expenditure. Too much money was being spent on the Navy, not enough on the Air Force, and we were not getting sufficient value for the money spent on the Army. The only way to remedy that state of affairs was by the creation of a Ministry of Defence, with one Minister in the Cabinet and a combined General Staff.

Lieut.-Col. Moore-Brabazon said he thought the Prime Minister's statement was the most damming indictment they had ever heard of in the system of Administering the Services. It was admitted a Minister of Defence would be one of the best ways of securing economy, yet for four years they had waited for a debate upon it. The time had come, he thought, when they might reorganise the Cabinet in relation to the members of the Government who were in and out of it. The vested interests of the old occupants of particular offices in the Cabinet seemed to be too strong for the House of Commons. He hoped that the Government would at least tell the House, not that they were going to establish a Ministry of Defence—that must come by degrees—but that they would promise that next year the Chancellor of the Exchequer and no one else would introduce the Service Votes as a whole, so that the House could discuss them as a whole.

Mr. A. Williams, the Unionist Member for North Cornwall, said that speaking as a naval officer he thought we were spending too much on the Navy and not enough on the Air Force.

Long-Distance Flights and Safety Equipment

MR. DAY, on March 26, asked the Secretary of State for Air whether he would consider the introduction of legislation making it compulsory for all aeroplanes taking off from Great Britain with the object of flying any distance exceeding 1,000 miles to be equipped with wireless and to carry satisfactory life-saving apparatus ?

Sir Samuel Hoare : Whilst in the case of aircraft carrying passengers for hire a reasonable degree of control by Regulation or otherwise is clearly required, as with all forms of public transport, the policy hitherto pursued as regards aircraft not carrying passengers for hire has been to leave the activities of pilots unrestricted except in so far as may be necessary in the interests of persons and property in the vicinity flown over. As at present advised, I consider that it would be undesirable in principle to take further powers with a view to exercising a more far-reaching and elaborate control over such aircraft. Further, any Regulations issued would present peculiar difficulties in enforcement and would, in consequence, hardly be likely to achieve their object. In these circumstances, I am not prepared to make the change suggested. I may add that neither Col. Lindbergh nor Mr. Chamberlin in their flights last year from America to Europe carried wireless, and that Mr. Hinkler's recent strikingly successful flight to Australia would definitely have been impracticable had he been required by Regulation to carry wireless apparatus.

Sir Harry Brittain : Would it not be practically impossible for an aeroplane to carry life-saving apparatus that would be satisfactory ?

Sir S. Hoare : That is the general conclusion of my answer under present conditions.

Cairo to Cape Flight

SIR PHILIP SASSOON, on March 28, in answer to Mr. Day, said the flight made by Royal Air Force biplanes between Cairo and the Cape was being carried out as a routine exercise of the same nature as the corresponding flights undertaken in 1926 and 1927. Four Fairey III.F aircraft with Napier "Lion" engines left Cairo on March 1. One machine was damaged when taking off at N'dola, in Northern Rhodesia, on March 16 ; the personnel sustained no injuries. The remaining three aircraft proceeded on the flight and reached Cape Town without forced landings *en route* on March 25. The flight was due to leave Cape Town on March 31, and would be joined at Pretoria by a detachment of the South African Air Force, which would accompany them as far as Khartoum. The combined flights would carry out co-operational exercises with the local forces at Tabora and Nairobi. The Royal Air Force flight was expected to return to Cairo on May 3.

IMPORTS AND EXPORTS

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910).

For 1910 and 1911 figures see FLIGHT for January 25, 1912.
For 1912 and 1913, see FLIGHT for January 17, 1914.
For 1914, see FLIGHT for January 15, 1915, and so on yearly, the figures for 1927 being given in FLIGHT, January 19, 1928.

	Imports.		Exports.		Re-Exports.	
	1927.	1928.	1927.	1928.	1927.	1928.
	£	£	£	£	£	£
Jan. ..	1,850	1,220	49,021	157,598	—	330
Feb. ..	679	1,772	63,080	118,622	—	345
	2,529	2,992	112,101	276,220	—	675

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SPLINTAX SAFETY GLASS, LTD., Splintax Works, 91, Stanley Road, Teddington.—Capital £300,000, in 200,000 8 per cent. cumulative participating perference shares of £1 each, and 2,000,000 ordinary shares of 1s. each. Acquiring interest in any patent relating to glass safety, compound, splinterless, and reinforced glass and the like, etc. Under agreement with the Splinterless Glass Co., Ltd.

PUBLICATIONS RECEIVED

British Ropes, Ltd., on London's Underground. British Ropes, Ltd., 32, Cavendish Square, London, W.1.

Royal Air Force Cadet College Magazine. Vol. VIII. *No.* 1. *Spring,* 1928. Gale and Polden, Ltd., Wellington Works, Aldershot.

Les Machines Volantes de Leonard de Vinci et le Vol a Voile. By R. Giacomelli. Tipografia del Senato, del Dott. G. Bardi, Rome.

Guida Aeronautica : Gli Aeroporti Doganali Italiani. Op. 4. Ministero dell'Aeronautica. Rome.

Le Zone Vietate alla Navigazione Aerea Civile e Straniera. Op. 5. Ministero dell'Aeronautica. Rome.

AERONAUTICAL PATENT SPECIFICATIONS

(*Abbreviations* : Cyl. = cylinder ; i.c. = internal combustion ; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.)

APPLIED FOR IN 1926

Published April 5, 1928

22,258. R. PEALE, W. S. DAVIES, and W. S. WALLACE. Distant control for dirigible self-propelled machines. (286,748.)

31,180. C. A. VILLIERS. Two-stroke radial-cyl. i.c. engines. (286,778.)

APPLIED FOR IN 1927

Published April 5, 1928

17,362. A. BENNETT. Engine turning-gear. (286,946.)

26,484. H. JUNKERS. Fuel pumps for i.c. engines. (287,000.)

35,241. F. FORMANEK. L. ZEMAN and E. ZEMAN. Aircraft. (287,034.)

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